

**United States Court of Appeals for the
Federal Circuit**

EVOLVED WIRELESS, LLC,
Plaintiff-Appellant

v.

**HTC CORPORATION, HTC AMERICA, INC., MOTOROLA MOBILITY
LLC, ZTE (USA) INC., MICROSOFT CORPORATION, MICROSOFT
MOBILE OY, NOKIA INC., SAMSUNG ELECTRONICS CO., LTD.,
SAMSUNG ELECTRONICS AMERICA, INC.,**
Defendants-Appellees

2020-1335, -1337, -1339, -1340, -1363

Appeals from the United States District Court for the District of Delaware
in Nos. 1:15-cv-00543-JFB-SRF, 1:15-cv-00544-JFB-SRF, 1:15-cv-00545-JFB-
SRF, 1:15-cv-00546-JFB-SRF, and 1:15-cv-00547-JFB-SRF, Senior Judge Joseph
F. Bataillon.

OPENING BRIEF OF APPELLANT EVOLVED WIRELESS, LLC

NON-CONFIDENTIAL

CERTIFICATE OF INTEREST

Counsel for Appellant Evolved Wireless, LLC certifies the following:

1. The full name of every party or amicus represented by me is: Evolved Wireless, LLC.

2. The real party in interest is: Evolved Wireless, LLC.

3. All parent corporations and any publicly held company that own 10% or more of the stock of the parties I represent are as follows: None.

4. The name of all law firms and the partners or associates that appeared for the parties now represented by me in the trial court or are expected to appear in this court (and who have not or will not enter an appearance in this case) are:

Brian E. Farnan and Michael J. Farnan of Farnan LLP; Andrea L. Gothing, Andrew D. Hedden, Anni Huang, Austin B. Miller, Benjamin C. Linden, Christopher K. Larus, John K. Harting, Marla R. Butler, Rajin S. Olson, Ryan E. Dornberger, and Ryan M. Schultz of Robins Kaplan LLP; Anthony F. Schlehuber of Baker, Donelson, Bearman, Caldwell &

Berkowitz, PC; and John C. Phillips, Jr. of Phillips, Goldman, McLaughlin & Hall, P.A.

5. The title and number of any case known to counsel to be pending in this or any other court or agency that will directly affect or be directly affected by this court's decision in the pending appeal are:

Evolved Wireless LLC v. Apple Inc., Case No. 2019-2362 (Fed. Cir.).

Dated: April 30, 2020

/s/ Eric M. Albritton

Eric M. Albritton

Counsel for Appellant Evolved
Wireless, LLC

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Pursuant to Federal Circuit Rule 28(d)(2)(B), Appellant provides the following description of the general nature of the material that has been deleted from this nonconfidential brief:

- The material deleted from Appx25-27 and Appx34 includes confidential contractual provisions.

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STATEMENT OF RELATED CASES

Pursuant to Federal Circuit Rule 47.5, counsel for Appellant Evolved Wireless, LLC states that no other appeal from the civil actions in the District Court that are the subject of the present appeals was previously before this Court or any other appellate court. To the best of counsel's knowledge, the only case pending in this Court or any other court that may directly affect or be directly affected by these appeals is *Evolved Wireless LLC v. Apple Inc.*, Case No. 2019-2362 (Fed. Cir.).

INTRODUCTION

Lying at the heart of this case is a simple question: whether a patent that covers LTE network technology is technically or commercially necessary to make, use, or sell a device that implements CDMA technology, and is thus subject to covenants not to sue. To ask the question is to answer it. The only patents technically or commercially *necessary* to make, use, or sell a device that implements CDMA technology are patents that cover CDMA technology, even if such a device also implements another technology, like LTE. So only patents covering CDMA technology are subject to the covenants not to sue at issue in this case.

The patent at issue in this case, U.S. Patent No. 7,809,373 (“the ’373 Patent”) covers an aspect of LTE technology. It does not cover any aspect of CDMA technology. The District Court granted summary judgment to Appellees, holding that Appellant Evolved Wireless, LLC’s (“Evolved”) claims for infringement of the ’373 Patent were barred by license and exhaustion. Appx36-37. It held that Evolved’s infringement claims were barred by a covenant not to sue because the original assignee of the ’373 Patent, LG Electronics, Inc. (“LGE”), granted Appellees a

covenant not to sue for infringement of the '373 Patent in an agreement with Appellees' supplier of baseband chips, Qualcomm, Inc. ("Qualcomm"). Appx34-35. It also held that Evolved's infringement claims were barred by exhaustion because LGE granted Qualcomm a covenant not to sue for infringement of the '373 Patent in the same agreement, and Qualcomm sold baseband chips that substantially embodied the '373 Patent to Appellees. Appx35.

In so doing, the District Court failed to thoroughly analyze the language of the relevant agreements. It instead relied on matters outside the record, including law review articles and findings of fact from Qualcomm's antitrust litigation about Qualcomm's business practices to surmise that Qualcomm and LGE intended the covenants to cover non-CDMA patents, such as the '373 Patent. *See, e.g.*, Appx12-16, Appx34.

The District Court's decision was erroneous. Under the plain language of the agreement between LGE and Qualcomm, only patents that cover CDMA technology are subject to the covenants not to sue. There is no evidence that the '373 Patent covers CDMA technology; instead, it is undisputed that the '373 Patent was declared essential to LTE standards, not CDMA standards. The Court should therefore

reverse the District Court's judgment and remand for further proceedings.

Even if the District Court correctly held that the '373 Patent was covered by the covenants not to sue, it erred by dismissing the case. The undisputed evidence shows that LGE terminated the agreements containing the covenants not to sue (and thus terminated the covenants themselves) effective December 31, 2018. The District Court, however, dismissed the entire case without ever mentioning that the covenants had been terminated. It should not have done so—at the very least, Evolved's claims for post-termination infringement were still viable. The Court should therefore at least reverse as to claims for infringement accruing after December 31, 2018, and remand for trial on those claims.

JURISDICTIONAL STATEMENT

The Court has jurisdiction over these consolidated appeals under 28 U.S.C. § 1295(a)(1). The United States District Court for the District of Delaware entered final judgments in each of the five cases now on appeal. The District Court entered final judgment in *Evolved Wireless, LLC v. HTC Corp., et al.*, Case No 1:15-cv-00543-JFB-SRF (D. Del.); *Evolved Wireless, LLC v. ZTE (USA), Inc.*, Case No. 1:15-cv-00546-JFB-SRF (D. Del.); and *Evolved Wireless, LLC v. Microsoft Corp., et al.*, Case No. 1:15-cv-00547 (D. Del.) on December 4, 2019.¹ Appx2-3, Appx98, Appx237, Appx281. Evolved timely filed notices of appeal in those cases on January 2, 2020. *See* 28 U.S.C. § 2107; Fed. R. App. P. 4(a)(1)(A); Appx4816-4817, Appx4822-4823, Appx4824-4825. The District Court entered a final judgment in *Evolved Wireless, LLC v. Motorola Mobility LLC*, Case No. 1:15-cv-00544-JFB-SRF (D. Del.) on December 4, 2019, and it entered an amended final judgment on December 30, 2019. Appx2-4, Appx142-143. Evolved timely filed a notice of appeal in that case on January 2, 2020. *See* 28 U.S.C. § 2107; Fed. R. App. P. 4(a)(1)(A);

¹ Although the District Court signed the judgments on December 3, 2019, the District Court entered the judgments on December 4, 2019. Appx98, Appx237, Appx281.

Appx4818-4819. The District Court entered final judgment in *Evolved Wireless, LLC v. Samsung Electronics Co. Ltd. et al.*, Case No. 1:15-cv-00545-JFB-SRF (D. Del.) on January 7, 2020. Appx5, Appx192. Evolved timely filed a notice of appeal in that case on January 9, 2020. *See* 28 U.S.C. § 2107; Fed. R. App. P. 4(a)(1)(A); Appx4820-4821.

STATEMENT OF THE ISSUES

1. Whether the District Court erred by holding that U.S. Patent No. 7,809,373 is subject to covenants not to sue, and thus erred by granting summary judgment of license and exhaustion in favor of Appellees.

2. Even if U.S. Patent No. 7,809,373 is subject to covenants not to sue, whether the District Court erred by granting summary judgment of license and exhaustion for activities occurring after the covenants not to sue were terminated.

STATEMENT OF THE CASE

I. Factual Background

A. Cellular Networks and Cellular Standards

For a wireless cellular network to work, every component of the network must play by the same rules. *See* Appx13-14. For a device (like a cell phone) on one network to communicate with another network, both networks must play by the same rules. *See id.*; Appx14-15. This is the purpose of cellular standards. Cellular standards establish the rules for how components of a network, including user devices (like cell phones) and network infrastructure, communicate with one another.

Cellular technology was first commercially deployed in the 1980s. Appx2762. It relied on analog communication for the provision of basic phone service. *Id.* These first-generation (“1G”) networks were developed locally within countries, and, as a result, someone with a device in one country could not use his or her device in another country. Appx2762-2763. To solve this problem, international organizations began to develop global cellular standards. Appx2763. Unlike 1G standards, these second-generation (“2G”) networks were digital. *Id.* The two main 2G network technologies are known as “GSM” and “IS-95.” *Id.*; *see also* Appx12-13.

Third-generation (“3G”) network technology was developed by the Third Generation Partnership Project (“3GPP”), a multi-national organization. Appx2764. In the late 1990s 3GPP developed a wireless cellular technology known as “WCDMA.” Appx2765; *see also* Appx13. Another multi-national organization, 3GPP2, developed another 3G family of standards known as “CDMA2000.” Appx2765. Both of these standards used a technology known as code division multiple access (“CDMA”), but they were incompatible with one another. *Id.*

3GPP developed a fourth-generation (“4G”) network technology, known as LTE (which stands for “long-term evolution”), to address the ever-growing need for data transmission capabilities. Appx2766. In addition, 3GPP developed LTE from the ground up to avoid the problems caused by having multiple, incompatible 3G standards. *Id.* While prior-generation cellular standards used CDMA, the LTE standard employed a new and fundamentally different technology—orthogonal frequency division multiple access (“OFDMA”). Appx14, Appx2773. 3GPP standardized LTE in 2008, although it has continued to update the standards as contributors develop new features. Appx13, Appx2773.

The development of new cellular standards is an iterative process involving industry players around the world. Appx2764. Companies participate in 3GPP via their membership in organizational partners, which are major telecommunications standards-developing organizations around the world. Appx13-14, Appx2764-2765. These organizational partners include the European Telecommunications Standards Institute (“ETSI”), the North American Alliance for Telecommunication Industry Solutions, and Telecommunications Technology Solutions of Korea. Appx2764. Member companies participate in 3GPP working groups, which come together to discuss and vote on proposals for technologies to be included in the standard. Appx2767. 3GPP participants are required to disclose any intellectual property that they own that is essential or is likely to become essential to practice any 3GPP standard. Appx14, Appx1015.

To communicate on a cellular network, a cellular device must contain what is known as a “baseband processor.” Appx14. A baseband processor can be either “single-mode” or “multi-mode.” Appx14-15. A single-mode processor supports only one cellular standard, and a multi-mode processor supports more than one standard. *Id.* For example, the

devices accused of infringement in this case have multi-mode processors because they support both CDMA and LTE standards. *Id.*; *see also* Appx3882 (Appellees recognizing that “it is undisputed that Defendants’ accused products are all multi-mode CDMA/LTE devices, not single-mode LTE-only devices”).

B. The ’373 Patent

The ’373 Patent, the only patent at issue in this case, was originally assigned to LGE. Appx18. TQ Lambda, Evolved’s predecessor, purchased the ’373 Patent from LGE in 2014. LGE was a member of ETSI and participated extensively in 3GPP working group meetings to develop LTE standards. Appx18, Appx38. It submitted numerous proposals for incorporation into the standards. Appx18, Appx1016. The ’373 Patent covers one of LGE’s adopted proposals. *Id.* LGE accordingly declared it as essential to LTE standards. *Id.* It has not been declared essential to any CDMA-based standard. Nor have Appellees ever argued that it is relevant to CDMA.

C. The 1993 CDMA Agreement

Qualcomm is a company that develops wireless technologies and supplies device manufacturers with wireless components, including

baseband chips, which allow devices to work on cellular networks. Appx15. Qualcomm and Goldstar Information & Communications, Ltd., which later became LGE, entered into an agreement that provides for the cross-licensing of patents related to CDMA technology (“the 1993 CDMA Agreement” or “the Agreement”).² Appx2210. The 1993 CDMA Agreement recognized that Qualcomm had “developed certain proprietary Code Division Multiple Access (‘CDMA’) technology[,] which may be useful in providing greater capacity and improved quality and reliability compared to other cellular telephone technologies,” and that LGE “ha[d] been selected by the Electronics and Telecommunications Research Institute (‘ETRI’) of Korea to obtain a license from QUALCOMM to make and sell Subscriber Units and Infrastructure Equipment.” *Id.*

The 1993 CDMA Agreement is complicated. A number of relevant terms are defined, often using other defined terms. Many of the relevant terms were defined and re-defined via amendment. While Evolved explains the various definitions and amendments below for the Court’s

² The full name of the Agreement is “Infrastructure and Subscriber Unit License and Technical Assistance Agreement.” Appx2210.

convenience, the relevant language at issue is undisputed. The parties do not dispute that the 1993 CDMA Agreement, as amended, contains covenants not to sue. Nor do they dispute that those covenants, as amended over time, cover patents that are technically or commercially necessary to make, use, or sell a “Subscriber Unit,” which, in relevant part, is defined as a “complete CDMA (including multi-mode) terminal” or “subsequent generation products.” The only point of disagreement is a simple one: whether a patent covering LTE (but not CDMA) technology is technically or commercially necessary to make, use, or sell such a device.

What ultimately became covenants not to sue began in the 1993 CDMA Agreement as a license. LGE granted to Qualcomm a non-exclusive license “to use LICENSEE’s³ Intellectual Property solely for

³ It is undisputed that “LICENSEE” refers to LGE as successor of Goldstar Information & Communications Ltd. See Appx2213 (defining “LICENSEE” as “Goldstar Information & Communications, Ltd.”); Appx2311 (stating that “QUALCOMM and LG Information and Communications, LTD. (‘LGIC’) entered into” the 1993 CDMA Agreement, and “in September 2000, LGIC merged into LGE, at which point LGIC ceased to exist as a corporate entity, and LGE became the successor in interest to all of LGIC’s rights and obligations under the License Agreement and LGE was substituted for LGIC as the LICENSEE under the License Agreement”).

Wireless Applications to . . . make (and have made) Components and use, sell, lease or otherwise dispose of Components.” Appx2225. The Agreement limits the intellectual property that is licensed via the term “Subscriber Unit.” The 1993 CDMA Agreement defines “LICENSEE’s Intellectual Property” as “LICENSEE’s Technically Necessary IPR” and “LICENSEE’s Commercially Necessary IPR.” In relevant part, the Agreement defines “LICENSEE’s Technically Necessary IPR” and “LICENSEE’s Commercially Necessary IPR” as patents and patent applications⁴ that are technically necessary and commercially necessary, respectively, to “use, make and/or sell Subscriber Units.” Appx2213-2214. Thus, through a series of nested definitions, the 1993 CDMA Agreement applies only to patents and patent applications technically or commercially necessary to make, use, or sell Subscriber Units. This is undisputed.

The 1993 CDMA Agreement similarly limits the “Components” that Qualcomm is allowed to make (or have made) under the Agreement. It

⁴ The terms “LICENSEE’s Technically Necessary IPR” and “LICENSEE’s Commercially Necessary IPR” include other types of intellectual property, including “copyrights, other intellectual property rights, trade secrets, know-how and technical information.” Appx2213-2214. This case is only about patents.

defines “Components” as certain things that are “intended for use in Subscriber Units and/or Infrastructure Equipment for Wireless Applications.”⁵ Appx2212. Thus, just as the scope of intellectual property was limited to that necessary to make, use, and/or sell “Subscriber Units,” the scope of products that Qualcomm was allowed to make under the Agreement was limited to those intended for use in “Subscriber Units.”

Under the 1993 CDMA Agreement, the term “Subscriber Unit” was limited to a device with CDMA technology. It was defined as “a complete CDMA and/or Dual Mode CDMA telephone . . . to initiate and receive Wireless telecommunications transmissions.” Appx2216. “Wireless” and “Wireless Applications” were similarly limited to “only CDMA-based Digital Cellular Systems . . . and any other CDMA wireless applications currently licensed by QUALCOMM to its existing CDMA Subscriber Unit and Infrastructure Equipment licensees.” Appx2217.

LGE and Qualcomm amended the 1993 CDMA Agreement several times over the next two decades. In 2004, they replaced LGE’s license to

⁵ The definition of “Components” was later amended, although in ways not germane to this case. Appx2328.

Qualcomm with two separate covenants not to sue: a covenant not to sue Qualcomm (“the Qualcomm Covenant”) and a covenant not to sue Qualcomm’s customers (“the Customer Covenant”) (collectively, “the Covenants”). Appx2318-2320. The parties amended the Covenants in 2007, and these Covenants, as amended, are the subject of this case. In the Qualcomm Covenant, LGE promised “not to Assert any of LICENSEE’s Intellectual Property . . . against . . . QUALCOMM or its Affiliates for making, having made, using, importing, leasing, selling, or otherwise disposing of Components^[6] (including but not limited to associated software).” Appx2340. In the Customer Covenant, LGE promised “not to Assert any of LICENSEE’s *Limited Intellectual Property* against . . . a QUALCOMM Customer . . . for making, having made, using, importing, selling, leasing, or otherwise disposing of Covenant Products where the alleged basis for infringement arises from the use or incorporation of QUALCOMM Components (including but not limited to associated software) in such Covenant Products.” Appx2340 (emphasis added).

⁶ The parties also amended the definition of “Components” in ways immaterial to this case. *See supra* note 5.

The Covenants limit the scope of the intellectual property and the products to which they apply through the term “Subscriber Units.” The definition of “LICENSEE’s Intellectual Property” did not change from the original 1993 CDMA Agreement—it includes “LICENSEE’s Technically Necessary IPR” and “LICENSEE’s Commercially Necessary IPR.” Appx2213. “LICENSEE’s *Limited* Intellectual Property” covers a subset of “LICENSEE’s Intellectual Property,” and is thus similarly limited to patents and patent applications that are technically or commercially necessary to make, use, or sell Subscriber Units. The Customer Covenant defines “LICENSEE’s Limited Intellectual Property” as “LICENSEE’s Intellectual Property . . . which LICENSEE . . . would not have been entitled to Assert against a QUALCOMM Customer . . . had the licenses granted to QUALCOMM in [the 1993 CDMA Agreement] with respect to Components remained in effect.” Appx2319-2320.

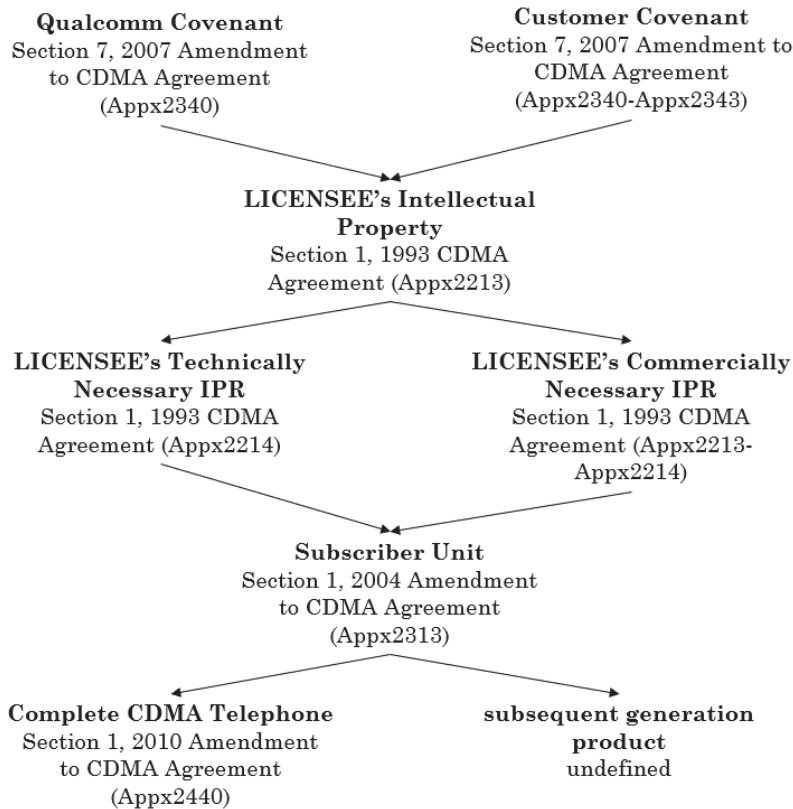
LGE and Qualcomm amended the definition of “Subscriber Unit” in the 2004 Amendment but ensured that it was still limited to a device with CDMA technology. The 2004 Amendment defined “Subscriber Unit” as “a Complete CDMA Telephone or a CDMA Modem Card, and any subsequent generation products.” Appx2313. While the 2004 Amendment

defines “Complete CDMA Telephone” (Appx2312-2313), the operative definition appears in an amendment from 2010 (“the 2010 Amendment”). It defines “Complete CDMA Telephone” as “any complete CDMA (including multi-mode) terminal, including but not limited to a fixed, mobile, transportable, or portable telephone or data terminal, which (i) incorporates all or any part of the QUALCOMM Intellectual Property and (ii) can be used, without any additional equipment or components being attached thereto, to initiate and/or receive Wireless communications.” Appx2440. The 2010 Amendment also clarified that “Wireless” and Wireless Applications” include, “without limitation, (i) any CDMA-based wireless wide area standard, including the CDMA2000 family of standards . . . , the WCDMA family of standards . . . and TD-SCDMA; and (ii) any updates or revisions to any of the foregoing.” Appx2443.

The chart below summarizes the provisions at issue in this case and how they relate to one another.⁷ At bottom, and as the chart indicates, what it means for a patent to be technically necessary or commercially

⁷ Evolved has reproduced the relevant text of these provisions, as well as others, in Appendix A, along with the location of where they appear in the record.

necessary to make, use, or sell a “Subscriber Unit” is what is at issue in this case. The parties agree that the Covenants apply only to patents that are “Technically Necessary IPR” or “Commercially Necessary IPR.” They agree that “Technically Necessary IPR” and “Commercially Necessary IPR” include only patents that are technically necessary or commercially necessary to use, make, or sell “Subscriber Units.” And they agree that a “Subscriber Unit” is a “a Complete CDMA Telephone or a CDMA Modem Card, and any subsequent generation products.” They just disagree whether a patent that covers something other than CDMA technology is technically necessary or commercially necessary to make, use, or sell a “Complete CDMA Telephone” or “subsequent generation product.”



D. LGE Terminates the 1993 CDMA Agreement, As Amended.

The 2007 Amendment to the 1993 CDMA Agreement permitted either party “to terminate the [1993 CDMA Agreement] as of December 31, 2018 by providing written notice to the other Party no later than June 1, 2018.” Appx2345. An amendment in January 2016 (after TQ Lambda, Evolved’s predecessor, bought the ’373 Patent) similarly provided that “either Party shall be entitled to terminate [the 1993 CDMA Agreement] as of December 31, 2018 by providing written notice to the other Party no later than June 1, 2018.” Appx3530.

LGE terminated the 1993 CDMA Agreement, as amended, effective December 31, 2018. In May 2018, LGE sent a letter to Qualcomm stating that it was terminating the 1993 CDMA Agreement as of December 31, 2018, “[p]ursuant to section 5 of the January 2016 Amendment to the CDMA Agreement and pursuant to section 10 of the January 1, 2007 Amendment to the CDMA Agreement.” Appx4610. The covenants not to sue accordingly were extinguished as of December 31, 2018. This fact has never been disputed.

II. Procedural History

Evolved sued Apple, HTC, Motorola, Samsung, ZTE, and Microsoft for infringement of the ’373 Patent (among others⁸) in the District of Delaware in 2015. Evolved alleged that each defendant infringed the ’373 Patent because they made, used, sold, offered for sale, or imported mobile devices that comply with the LTE standard. Appx19. Each accused device is a “multimode” device, meaning that each device supports more than

⁸ Only the ’373 Patent remains at issue. Evolved initially asserted infringement of five patents. Appx18. The parties stipulated to dismissal of three of the patents. *Id.* The Patent Trial and Appeal Board issued a Final Written Decision finding the asserted claims of a fourth patent invalid, and the Federal Circuit affirmed. *Id.*; *see also Evolved Wireless, LLC v. ZTE (USA), Inc., et al.*, Nos. 2018-2008, 2018-2009, 2018-2010, 2018-2011 (Fed. Cir. Oct. 4, 2019).

one cellular standard. Appx2174 (Appellees asserting that their Qualcomm-based products are “multimode devices (*i.e.*, devices supporting multiple cellular standards or generations thereof”); Appx4768 (“And there’s also no dispute that I think every phone involved in this case is a multi-mode phone.”). Each defendant asserted affirmative defenses of express license, implied license, and/or exhaustion. Appx1987-1988, Appx2015, Appx2037, Appx2056, Appx2107.

A. Motions for Summary Judgment

After discovery closed, the defendants jointly filed a motion for summary judgment,⁹ asserting that Evolved’s infringement claims as to the ’373 Patent were barred by exhaustion as a result of the Qualcomm Covenant and by a covenant not to sue as a result of the Customer Covenant. Appx2160. Evolved filed a cross-motion for summary judgment on the defendants’ license and exhaustion defenses. Appx2199-2200.

⁹ Although the District Court did not consolidate the cases, it treated them as related and coordinated their schedules accordingly.

At the time the parties filed their motions, the 1993 CDMA Agreement was still in force. After briefing closed, however, counsel for LGE informed counsel for Evolved that LGE had terminated the Agreement, effective December 31, 2018. Appx4599-4600. Evolved accordingly filed a Notice of Supplemental Facts, accompanied by competent summary judgment evidence, to inform the District Court of the termination and make clear that the 1993 CDMA Agreement “cannot serve as the basis for relieving liability for any infringement that occurs on or after January 1, 2019.” Appx4593-4611. Appellees did not respond to the notice. Nor have they ever disputed that LGE terminated the 1993 CDMA Agreement.

The District Court initially denied the motions for summary judgment. It held that it was “unable to grant either party’s motion for summary judgment on the licensing issues” because “[t]he record contains only heavily redacted copies of the Licensing Agreement and amendments.” Appx4639. The District Court thus “ha[d] no competent evidence as to either parties’ position.” *Id.* The District Court, though, believed that the license and exhaustion issues were matters for the court, not the jury, because they required construction of the contracts.

Id. The District Court thus only denied the motions *without* prejudice, subject to re-assertion after trial. Appx4640.

Evolved then tried its case against Apple. The jury returned a verdict of non-infringement, and the District Court denied Evolved's motion for judgment as a matter of law and motion for a new trial and entered judgment ("the Apple Judgment"). Evolved filed a notice of appeal. The appeal is pending before this Court. *See Evolved Wireless LLC v. Apple Inc.*, Case No. 2019-2362 (Fed. Cir.). The Court has related the appeal of the Apple judgment with these appeals, and the same panel will hear all of Evolved's current appeals in this Court. *See* ECF 4.

After Evolved appealed the Apple judgment, the remaining parties stipulated to stay their cases pending resolution of the appeal in Evolved's case against Apple. Appx4695-4700. The District Court, on its own motion, issued an order stating that it "may reconsider its earlier decision to defer determination of the licensing/patent exhaustion issue until after the pending trials" and scheduled oral argument. Appx4702-4703. At the hearing, the District Court explained that it had read a recent decision from the Northern District of California about Qualcomm's licensing practices. According to the District Court, that

decision “at least enlightened [the District Court] on a lot of the business practice of Qualcomm,” and “against that backdrop, the issue of exhaustion is in play.” Appx4714-4715.

At the hearing, Evolved continued to stress the importance of LGE’s termination of the 1993 CDMA Agreement. For example, counsel for Evolved stated: “But just to clarify your Honor, the covenants are all forward looking, and so when those covenants got terminated they have no further effect. So it would have an impact on the scope of this case, but if there were sales of accused products after that termination date, they would not be subject to any of these covenants that they rely upon, even those covenants that might have been in place at the time.” Appx4728. Again, counsel for Appellees never disputed the fact of termination or its effect on Evolved’s infringement claims; indeed, counsel for Appellees never even mentioned the termination.

B. The District Court’s Order

Three months later, the District Court granted the defendants’ (except for Apple’s) motion for summary judgment in a written order. The District Court first determined that no additional discovery was warranted because “[t]he parties have now assured the Court that the

redacted portions of the Agreements would not affect the determination of this issue”¹⁰ and “the Court is satisfied that the documents, as redacted, represent what TQ Lambda bought when it purchased the patent portfolio from LGE.”¹¹ Appx11. The District Court then recited “[s]ome background facts” that it “gleaned from recent litigation involving Qualcomm” (*i.e.*, from outside the record in the case pending before it). Appx12. Among other things, the District Court observed that,

¹⁰ Evolved did not concede that the redacted portions of the Agreement were irrelevant. Indeed, Evolved contended that the District Court should grant summary judgment in its favor because the District Court could not interpret the Agreement without a full, unredacted version of the Agreement. Appx3737-3740; Appx4747 (“We don’t have unredacted copies. We think it’s necessary and we think your Honor has found it necessary to actually see unredacted copies to rule on these defenses.”).

¹¹ The District Court appeared to believe that TQ Lambda (and, ultimately, Evolved) would only be bound by the *unredacted* portions of the Agreement because that is all it had access to when it purchased the ’373 Patent. Appx4748 (“So isn’t whatever you have, whatever IP you have, isn’t it basically subject to the redacted copies of the agreement that LGE gave your predecessor? Because that’s what you bought.”); Appx4750 (“So your argument in your case, this is a heavily redacted agreement and there could be parts of this agreement that say completely the opposite thing that the defendants are saying. But my question to you, isn’t that irrelevant? Because of the parts that are redacted, you didn’t buy that part of the contract, you didn’t buy the protections of that part of the contract. Otherwise you’d have a complete set of the contract. You’re basically limited to the redacted contract that LGE gave your predecessor, aren’t you?”).

before Qualcomm will sell chips to an original equipment manufacturer, it requires the manufacturer to license its standard-essential patents back to Qualcomm. Appx16. According to the District Court, “[t]he[se] background facts are intended only to provide context for the Court’s decision.” Appx12. The District Court did not take judicial notice of any of these “facts.”

The District Court then interpreted the 1993 CDMA Agreement, as amended, as applying to *any* technology technically or commercially necessary to make, use, or sell “a subscriber unit,” not just CDMA technology. Appx33. According to the District Court, “[a] review of the Agreements and Amendments, as redacted, shows the licensing agreements were meant to grow and evolve with the technology.” *Id.* The District Court rejected the argument that only patents necessary to practice CDMA technology were licensed because “[u]nder the plain language of the 1993 SULA Agreement^[12] and subsequent amendments, especially the 2010 revision of the term ‘subscriber units’ to cover multi-

¹² The District Court referred to the 1993 CDMA Agreement as the “1993 SULA Agreement.” “SULA” means “Subscriber Unit License Agreement.” Appx16.

mode devices, the parties contemplated covering the universe of evolving technology that incorporated Qualcomm chipsets.” Appx32.

The District Court accordingly held that the ’373 Patent “is both technically and commercially necessary IPR to use, make, or sell ‘subscriber units.’” Appx33. Because “[t]he license agreement extends to intellectual property that is technically necessary to the subscriber unit as a whole,” and “LGE declared the ’373 Patent to be a standard essential patent,” the District Court determined that the ’373 Patent was technically necessary IPR under the 1993 CDMA Agreement. Appx33. The District Court also held that, “[b]ecause phones containing patents essential to LTE technology must work on older networks that employ 2G and 3G technology, the ’373 Patent is also commercially necessary.” *Id.*

The District Court finally observed that its “interpretation comports with what appear to be Qualcomm’s licensing and marketing strategy, whereby it attempted to maintain its monopoly in both the CDMA and premium LTE chip markets and to impose an anticompetitive surcharge on its competitors’ chips.” Appx34. It stated that “[a]lthough the anticompetitive conduct is not before the Court, Qualcomm’s

background business practices support the Court's interpretation of the Agreements at issue." *Id.* Again, the District Court did not rely on any evidence submitted by the parties about Qualcomm's business practices. Nor did it take judicial notice of any facts about Qualcomm's business practices.

The District Court's order said nothing about LGE's termination of the 1993 CDMA Agreement. Despite the undisputed evidence that LGE had terminated the 1993 CDMA Agreement, and thus the Covenants, effective December 31, 2018, the District Court granted Appellees' motion for summary judgment in full and entered judgment as to *all* products containing Qualcomm baseband chipsets. This judgment was final in Evolved's cases against HTC, Motorola,¹³ ZTE, and Microsoft because Evolved was only asserting infringement against those Appellees based on devices with Qualcomm baseband chipsets. Evolved and Samsung

¹³ The District Court's judgment initially indicated that claims involving baseband chipsets other than Qualcomm baseband chipsets were stayed pending resolution of the appeal in the Apple case. Appx2. Evolved and Motorola, however, had previously stipulated to dismiss infringement claims based on devices with non-Qualcomm baseband chipsets. Appx4811. The District Court thus entered an amended judgment clarifying that the case between Evolved and Motorola was dismissed. Appx4.

later stipulated to dismiss infringement claims based on devices with non-Qualcomm baseband chipsets, leading the District Court to enter final judgment in that case based on its order granting summary judgment. Appx5, Appx4812-4813.

SUMMARY OF THE ARGUMENT

The District Court erred by granting summary judgment of exhaustion and license for two reasons. First, the District Court misconstrued the 1993 CDMA Agreement by holding that it provides covenants not to sue for infringement of patents covering LTE technology when implemented in a CDMA/LTE multi-mode device. The plain language of the Covenants is to the contrary. The Covenants are implicated only by patents that are technically necessary or commercially necessary to make, use, or sell “any complete CDMA (including multi-mode) terminal.” Appx2440. The only patents that are “necessary,” either technically or commercially, to make a CDMA terminal, *even a multi-mode one*, are patents that cover CDMA technology. As the 1993 CDMA Agreement, as amended, makes clear, a device can be a multi-mode device and *not* include LTE technology. For example, a multimode device could support CDMA and GSM network technology. A patent covering LTE technology is not necessary to make, use, or sell such a device, and thus is not technically or commercially necessary to make, use, or sell a “CDMA (including multi-mode) terminal.”

Second, regardless of whether the Covenants apply to the '373 Patent, the District Court erred by dismissing the entire case. The undisputed summary-judgment evidence shows that LGE terminated the 1993 CDMA Agreement, as amended, effective December 31, 2018, in accordance with the applicable termination provisions. When LGE terminated the 1993 CDMA Agreement, as amended, it necessarily terminated the covenants not to sue therein. So even if the Covenants applied to the '373 Patent, they could not apply to any infringing activities occurring after December 31, 2018. Thus, at the very least, the Court should reverse the District Court's judgment as to infringing activities occurring after December 31, 2018, and remand for trial.

ARGUMENT

I. THE DISTRICT COURT'S GRANT OF SUMMARY JUDGMENT OF EXHAUSTION AND LICENSE SHOULD BE REVERSED.

The Court should reverse the District Court's grant of summary judgment. This Court "review[s] the grant of summary judgment under the law of the regional circuit in which the district court sits"—here, the Third Circuit. *Classen Immunotherapies, Inc. v. Elan Pharms., Inc.*, 786 F.3d 892, 896 (Fed. Cir. 2015) (citing *Teva Pharm. Indus. Ltd. v.*

AstraZeneca Pharms. LP, 661 F.3d 1378, 1381 (Fed. Cir. 2001)). “In the Third Circuit, the court reviews the grant of summary judgment de novo.” *Microsoft Corp. v. GeoTag, Inc.*, 817 F.3d 1305, 1313 (Fed. Cir. 2016) (citing *Al-Sharif v. U.S. Citizenship & Immigration Servs.*, 734 F.3d 207, 210 n.2 (3d Cir. 2013) (en banc)). “To warrant summary judgment, the movant must show that, viewing the evidence in the light most favorable to the nonmoving party, there is no genuine issue of material fact and the movant is entitled to judgment as a matter of law.” *Shire, LLC v. Amneal Pharms., LLC*, 802 F.3d 1301, 1306 (Fed. Cir. 2015) (quoting *Daniels v. School Dist. of Phila.*, 776 F.3d 181, 192 (3d Cir. 2015)).

The District Court held that the 1993 CDMA Agreement, as amended, provides a covenant not to sue to Qualcomm and its customers for infringement of patents covering network technologies other than CDMA. Appx31-34. In so holding, the District Court relied on irrelevant portions of the Agreement and extrinsic evidence not cited by either party (despite also holding that the Agreement was unambiguous) to find that LGE and Qualcomm intended that the Agreement “evolve” to cover new technologies over time. *Id.* That understanding of the Agreement is belied by the plain language of the covenants not to sue. Properly understood,

the covenants not to sue apply only to patents that cover CDMA technology. There is no evidence—indeed, there has been no argument—that the ’373 Patent covers CDMA technology. Thus, as a matter of law, the covenants not to sue do *not* extend to the ’373 Patent.

A. The 1993 CDMA Agreement, as Amended, Provides Covenants Not To Sue Only for Infringement of Patents Covering CDMA Technology.

The District Court’s holding that the 1993 CDMA Agreement, as amended, provides a covenant not to sue for infringement of patents covering technology other than CDMA technology was error. The 1993 CDMA Agreement is governed by California law. Appx2237. Under California law, “[i]nterpretation of a written instrument is generally a question of law.” *Kitty-Anne Music Co. v. Swan*, 4 Cal. Rptr. 3d 796, 801 (Cal. Ct. App. 2003) (citing *Parsons v. Bristol Development Co.*, 402 P.2d 839, 842 (Cal. 1965)). The “initial inquiry is confined to the writing alone. . . . The ‘clear and explicit’ meaning of these provisions, interpreted in their ‘ordinary and popular sense,’ unless ‘used by the parties in a technical sense or a special meaning is given to them by usage’ ([Civ. Code], § 1644), controls judicial interpretation.” *Mountain Air Enters., LLC v. Sundowner Towers, LLC*, 398 P.3d 556, 561 (Cal.

2017) (citations and quotation marks omitted). “The basic goal of contract interpretation is to give effect to the parties’ mutual intent at the time of contracting.” *Grey v. Am. Mgmt. Servs.*, 139 Cal. Rptr. 3d 210, 212 (Cal. Ct. App. 2012).

Under the plain language of the 1993 CDMA Agreement, as amended, LGE and Qualcomm did not intend that the Qualcomm Covenant or the Customer Covenant would extend to patents covering something other than CDMA technology. The Qualcomm Covenant applies, in relevant part, to “LICENSEE’s Intellectual Property.” Appx2340. The Customer Covenant applies, in relevant part, to “LICENSEE’s Limited Intellectual Property.” Appx2340, Appx2342. While there are some differences between “LICENSEE’s Intellectual Property” and “LICENSEE’s Limited Intellectual Property,” both cover only “LICENSEE’s Technically Necessary IPR” and “LICENSEE’s Commercially Necessary IPR.” *See supra* Section I.C. “LICENSEE’s Technically Necessary IPR” includes only patents and patent applications that are “technically necessary to use, make and/or sell Subscriber Units, Cordless Base Stations and/or Infrastructure Equipment.” Appx2214. Similarly, “LICENSEE’s Commercially Necessary IPR” includes only

patents and patent applications that are “commercially necessary to use, make and/or sell Subscriber Units, Cordless Base Stations, Channel Units and/or CDMA Enabling Infrastructure Equipment.” Appx2213-Appx2214.

The District Court focused on the term “Subscriber Units.” See Appx31-Appx33. The operative definition of that term is “Complete CDMA Telephones and CDMA Modem Cards, and any subsequent generation products.” Appx2313. Thus, the patents that cover something other than CDMA technology are covered by the Qualcomm Covenant or Customer Covenant only if such patents are technically or commercially necessary to make, use, or sell a “Complete CDMA Telephone” or “subsequent generation products.”¹⁴ They are not.

1. **Only patents that cover CDMA technology are technically or commercially necessary to make, use, or sell a “Complete CDMA Telephone.”**

Only patents that cover CDMA technology are necessary to make, use, or sell a “Complete CDMA Telephone.” A “Complete CDMA Telephone” is “any complete CDMA (including multi-mode) terminal,

¹⁴ The District Court did not hold, and Appellees have not argued, that the ’373 Patent is necessary to make, use, or sell “CDMA Modem Cards.”

including but not limited to a fixed, mobile, transportable or portable telephone or data terminal, which (i) incorporates all or any part of the QUALCOMM Intellectual Property and (ii) can be used, without any additional equipment or components being attached thereto, to initiate and/or receive Wireless communications.” Appx2440.

A patent that covers something other than CDMA technology is not necessary, either technically or commercially, to make, use, or sell a “complete CDMA (including multi-mode) terminal.” Take an LTE patent, for example. One can make a CDMA terminal, including a multi-mode terminal, *without* incorporating LTE technology at all. For example, one could make a terminal that supports both 3G CDMA and 2G GSM—a multi-mode terminal that does not support LTE. The 1993 CDMA Agreement, as amended, itself recognizes the existence of such terminals. The recitals in the 2004 Amendment state that “LICENSEE granted QUALCOMM, among other things, a license under certain of LICENSEE’s and its Affiliates’ patents to make (and have made), use and sell Components for use in single-mode CDMA Subscriber Units and multi-mode CDMA Subscriber Units (e.g., Components implementing *multi-mode CDMA/GSM* in Subscriber Units) for CDMA-based Wireless

applications.” Appx2311 (emphasis added). A patent covering LTE is not necessary to make such a device.

The District Court held that patents covering technology other than CDMA technology *could* be technically or commercially necessary¹⁵ to make, use, or sell “Subscriber Units.” In so doing, the District Court appeared to improperly focus, not on what is technically or commercially necessary to make, use, or sell a “Subscriber Unit” as defined by the Agreement, but what is technically or commercially necessary to make, use, or sell Appellees’ infringing devices. Specifically, the District Court held, based on the definition of “Subscriber Unit,” that “the 1993 SULA Agreement, as amended, covers the defendants’ multimode, Qualcomm-based products.” Appx32. But the proper question is not what *products* are covered by the Agreement—it is what *patents* are covered by the Agreement. And the Agreement covers patents that are necessary to

¹⁵ While Appellees initially argued that the ’373 Patent is both technically and commercially necessary to make, use, or sell a “Subscriber Unit,” Appellees argued only that the ’373 Patent is commercially necessary in their reply brief, apparently abandoning the argument that it is technically necessary. Appx3866-3869. The District Court nevertheless held that the ’373 Patent is both technically and commercially necessary to make, use, or sell a subscriber unit. Appx33.

make, use, or sell CDMA multi-mode devices, not patents that are necessary to make, use, or sell appellees' CDMA/LTE devices.

That the Agreement only provides covenants not to sue for patents covering CDMA technology is confirmed by the definition of “Wireless.” As discussed above, a patent only implicates the Covenants if it is technically or commercially necessary to make, use, or sell a “Complete CDMA Telephone,” which is a “complete CDMA (including multi-mode) terminal.” The definition of “Complete CDMA Telephone” includes another requirement—the terminal must be able to “be used, without any additional equipment or components being attached thereto, to initiate and/or receive Wireless communications.” Appx2440. “Wireless” is defined as “*only* CDMA-based Digital Cellular Systems . . . and any other CDMA wireless applications currently licensed by QUALCOMM to its existing CDMA Subscriber Unit and Infrastructure Equipment licensees.” Appx2217 (emphasis added). Thus, a patent is only covered if it is technically or commercially necessary to make, use, or sell a “complete CDMA (including multi-mode) terminal” that “can be used, without additional equipment or components being attached thereto, to initiate and/or receive [*only* CDMA-based Digital Cellular

Systems . . . and any other CDMA wireless applications] communications.” Appx2217, Appx2440. A patent that covers LTE technology but not CDMA technology is not necessary, technically or commercially, to make, use, or sell a terminal that can be used to initiate or receive CDMA-based communications.

2. Only patents that cover CDMA technology are technically or commercially necessary to make, use, or sell a “subsequent generation product.”

Before the District Court, Appellees also contended that patents that cover LTE technology are commercially necessary to make, use, or sell “a subsequent generation product.”¹⁶ Appx3864-3869. Appellees contended that a CDMA/LTE multimode device, like the ones accused of infringement, is a “subsequent generation product.” Appx3869. So, the argument goes, the covenants not to sue must extend to patents that are commercially necessary to implement the LTE features in such devices.

Id.

¹⁶ Appellees first made this argument in their reply brief before the District Court. The District Court did not specifically address this argument. While the District Court held that the ’373 Patent is technically and commercially necessary to make, use, or sell “subscriber units,” it appears to have reached this conclusion primarily on the theory that the accused products are “multi-mode” devices, not “subsequent generation products.” Appx31-34.

Appellees' argument is incorrect. Like the District Court, Appellees are attempting to interpret the Agreement based on the accused devices, not on the language of the Agreement. The language of the Agreement, properly understood, shows that "subsequent generation products" refers to subsequent generation products that implement CDMA network technology. And only patents that cover CDMA network technology are technically or commercially necessary to make, use, or sell such products.

The Agreement defines "Subscriber Unit" as "a Complete CDMA Telephone or a CDMA Modem Card, and any subsequent generation products." Appx2313. As discussed above, a Complete CDMA Telephone is a terminal that implements CDMA technology. The definition of "CDMA Modem Card" similarly requires a modem card that implements CDMA technology—it is defined as "a complete CDMA or a complete Dual Mode CDMA^[17] modem card or module which incorporates all or any part of the QUALCOMM Intellectual Property and is Sold for use with a

¹⁷ The 1993 CDMA Agreement defined "Dual Mode CDMA" as "having a capability to operate with CDMA technology and existing analog FM cellular technology for such backward compatibility with currently existing cellular infrastructure and terminals as may be required by the marketplace." Appx2212.

‘Communications Device¹⁸.’” Appx2312. Under California law, “[w]here general words follow specific words in a [contractual provision,] the general words are construed to embrace only objects similar in nature to those objects enumerated by the preceding specific words.” *Mountain Air Enters.*, 398 P.3d at 562 (internal quotation marks omitted) (second alteration in original) (quoting *Barrett v. Superior Court*, 272 Cal. Rptr. 304, 312 (Cal. Ct. App. 1990)); *see also Avenues in Leather, Inc. v. United States*, 178 F.3d 1241, 1244 (Fed. Cir. 1999) (citing *Totes, Inc. v. United States*, 69 F.3d 495, 498 (Fed. Cir. 1995) (holding, in regulatory interpretation case, that “when a list of items is followed by a general word or phrase, the rule of *ejusdem generis* is used to determine the scope of the general word or phrase”). Here, “subsequent generation products” is a general term that follows two specific terms. The specific terms cover articles that implement CDMA technology. “Subsequent generation products” should be understood similarly.

¹⁸ A “Communications Device” is “a telephone, notebook computer, personal digital assistant, multi-media terminal, facsimile machine, monitoring device, data entry terminal, automatic teller machine, vending machine, or point of sale terminal.” Appx2312.

The negotiation history between Qualcomm and LGE confirms that “subsequent generation products” means products that implement CDMA technology. Qualcomm and LGE defined “Subscriber Unit” in the 1993 CDMA Agreement in relevant part as “a complete CDMA and/or Dual Mode CDMA telephone.” Appx2216. In the 2004 Amendment, they expanded the definition to extend beyond telephones: “Subscriber Unit’ shall mean a Complete CDMA Telephone *or a CDMA Modem Card, and any subsequent generation products.*” Appx2313 (emphasis added). This amendment shows that LGE and Qualcomm were concerned not with capturing new network technologies, but new types of products that incorporate existing CDMA technology.

Because “subsequent generation products” are limited to products that incorporate CDMA technology, the patents technically or commercially necessary to make, use, or sell such products are similarly limited. A patent that covers LTE technology but not CDMA technology is not technically or commercially necessary to make, use, or sell a subsequent generation product that incorporates CDMA technology—just as one can make a “Complete CDMA Telephone” that does not support

LTE, one could make a subsequent generation product that does not support LTE. Appellees are wrong to suggest otherwise.

3. The District Court’s decision rested on irrelevant contractual provisions and extrinsic evidence.

The District Court relied on a number of irrelevant facts and extrinsic evidence to support the conclusion that the 1993 CDMA Agreement as amended was intended to “grow and evolve with the technology.” Appx34. None of it undermines the plain language of the Agreement, which evinces the mutual intent of LGE and Qualcomm to exclude patents covering non-CDMA technology from the Covenants.

a) The District relied on irrelevant contractual provisions.

First, the District Court improperly relied on a number of provisions *outside* of the Covenants to determine that the 1993 CDMA Agreement grew to encompass new technologies. For example, the District Court cited references to “updates or revisions,” “any improvements to any such [technically or] Commercially Necessary IPR which is developed or acquired during the Improvement Period,” and

“future evolutions of such standards”¹⁹ in the Agreement. Appx34. None of these terms support the District Court’s conclusion.

The first term—“updates or revisions”—is from a portion of the 2010 Amendment that “clarifies” the definition of “Wireless” (a term that appears in the definition of “Complete CDMA Telephone”) and “Wireless Applications” to include, “without limitation, (i) any CDMA-based wireless wide area standard, including the CDMA2000 family of standards . . . , the WCDMA family of standards . . . and TD-SCDMA; and (ii) any updates or revisions to any of the foregoing.” Appx2443. Every standard listed is a *CDMA* standard. So, as the language indicates, this “clarification” was intended to capture updates or revisions of CDMA standards, not new network technology.

The second provision—“any improvements to any such [technically or] Commercially Necessary IPR which is developed or acquired during the Improvement Period”—similarly does not indicate an intent to capture new network technologies in the covenant not to sue. To be sure, the Covenants extend to “Technically Necessary IPR” and “Commercially

¹⁹ The District Court’s decision did not actually examine these provisions in any detail.

Necessary IPR” developed or acquired during the “Improvement Period.” Appx2213-2214 (definitions of “Improvements,” “LICENSEE’s Commercially Necessary IPR,” and “LICENSEE’s Technically Necessary IPR”). But both Covenants also expressly exclude “any intellectual property rights acquired or developed after December 31, 2006 by LICENSEE or its Affiliates.” Appx2340, Appx2343. As even the District Court recognized, LTE was first standardized in 2008. Appx13. So the covenants could not even apply to most patents that cover LTE (but not CDMA) technology.

The third provision—“future evolutions of such standards”—comes from the recitals in the 2004 Amendment. As with the phrase “updates or revisions,” the context makes clear that “future evolutions of such standards” refers to evolutions of *CDMA* standards. Appx2311. The recitals in the 2004 Amendment merely recognize that the 1993 CDMA Agreement granted Qualcomm a license to make, use, and sell “‘Components’ for use in single-mode CDMA Subscriber Units and multi-mode CDMA Subscriber Units (e.g., Components implementing multi-mode CDMA/GSM in Subscriber Units) for CDMA-based wireless applications, including wireless applications based on the families of

CDMA standards commonly referred to as IS-95, cdma2000 . . . , and WCDMA (or UMTS) as well as future evolutions of such standards.” *Id.* Again, such “future evolutions” are mentioned only in the context of CDMA standards—they do not include future, non-CDMA technologies.

b) The District Court relied on inadmissible and irrelevant evidence about Qualcomm’s business practices.

The District Court also justified its conclusion that the Covenants extend to patents covering non-CDMA technology based on “Qualcomm’s background business practices.” Appx34. The evidence on which the District Court based its understanding of Qualcomm’s practices came not from the parties, but from various district court decisions involving antitrust claims against Qualcomm.²⁰ Appx12. In its order granting summary judgment, the District Court observed that, “in the early 1990s, Qualcomm started licensing to only original equipment manufacturers at a 5% running royalty on the price of each handset sold.” Appx16. These

²⁰ The District Court cited *Fed. Trade Comm’n v. Qualcomm Inc.*, No. 17-CV-00220-LHK, 2019 WL 2206013, at *3 (N.D. Cal. May 21, 2019); *In re Qualcomm Antitrust Litig.*, No. 17-MD-02773-LHK, 2018 WL 4110498, at *1 (N.D. Cal. Aug. 29, 2018); and *Apple Inc. v. Qualcomm Inc.*, No. 3:17-cv-00108-GPC-MDD, 2017 WL 3966944, at *1-3 (S.D. Cal. Sept. 7, 2017). Appx12.

same license agreements “also require[d] original equipment manufacturers to cross-license their own SEP patents to Qualcomm, sometimes on a royalty-free basis.” *Id.*

The District Court repeatedly stated that whether Qualcomm’s conduct was unfair or anticompetitive was not before it. *See* Appx31 (“Whether Qualcomm’s and/or LGE’s licensing and/or business practices are otherwise illegal, unfair, anticompetitive, or oppressive is not a question for this Court.”); Appx34 (“Although the anticompetitive conduct is not before the Court . . .”). But the District Court *did* consider this evidence. It held that “Qualcomm’s background business practices support the Court’s interpretation of the Agreements at issue.” Appx34. And at oral argument, the District Court stated that it had “a hard time believing that Qualcomm has not soaked up all of LGE’s technology as it relates to any chip that they have manufactured, whether it’s an LTE phone, CDMA phone, or any kind of phone that they’ve made, *because that’s just not the way they do business.*” Appx4744 (emphasis added).

As an initial matter, it was erroneous to consider evidence of Qualcomm’s business practices. The evidence on which the District Court based its understanding of Qualcomm’s practices came from various

district court decisions involving antitrust claims against Qualcomm—not from the parties. Appx12. It was thus outside the record. Moreover, the District Court did not take judicial notice of such facts under Federal Rule of Evidence 201. Nor could it have—“taking judicial notice of findings of fact from another case exceeds the limits of Rule 201.” *Wyatt v. Terhune*, 315 F.3d 1108, 1114 (9th Cir. 2003) (citing *M/V Am. Queen v. San Diego Marine Constr. Corp.*, 708 F.2d 1483, 1491 (9th Cir. 1983)), *overruled on other grounds*, *Albino v. Baca*, 747 F.3d 1162, 1166 (9th Cir. 2014); *see also GE Capital Corp v. Lease Resolution Corp.*, 128 F.3d 1074, 1082 n.6 (7th Cir. 1997) (“We agree that courts generally cannot take notice of findings of fact from other proceedings for the truth asserted therein because these findings are disputable and usually are disputed.”).

Moreover, Qualcomm’s business practices have no bearing on their interpretation of the 1993 CDMA Agreement as amended. As the District Court recognized, “California law prohibits the admission of parol evidence . . . to influence the meaning of contract terms where no ambiguity exists.” Appx30 (citing *TransCore, LP v. Elec. Transaction Consultants Corp.*, 563 F.3d 1271, 1277 (Fed. Cir. 2009)). But, according to the District Court, “[t]he terms of the contracts at issue are not

ambiguous.” Appx11. Indeed, neither party argued that any term was ambiguous, and, in fact, both parties moved for summary judgment on the interpretation of the contract. Evidence of Qualcomm’s business practices is therefore irrelevant to interpreting the Agreement.

B. Because There Is No Evidence that the ’373 Patent Covers CDMA Technology, Appellees’ License and Exhaustion Defenses Fail.

The ’373 Patent is not subject to the Covenants. As explained above, the Covenants extend only to patents covering CDMA technology. There is no evidence in the record that the ’373 Patent covers CDMA technology. Indeed, the evidence in the record shows that the ’373 Patent covers LTE technology, not CDMA technology.

This entire case has been about LTE technology. From the very beginning, Evolved made clear that it is alleging that Appellees have infringed (and continue to infringe) the ’373 Patent because their devices support LTE technology. *See, e.g.,* Appx304-305 (HTC Complaint), Appx789-780 (Motorola Complaint), Appx1032-1033 (Samsung Complaint), Appx1369-1371 (ZTE Complaint), Appx1694-1695 (Microsoft Complaint). And it is undisputed that the ’373 Patent has been declared essential to LTE, *not CDMA*, standards. *See* Appx2181 (Appellees

acknowledging that “LGE declared the ’373 patent essential to the LTE standard”); Appx3465 (Evolved asserting that “[t]he asserted ’373 Patent was declared essential by LGE to the LTE standard”); Appx18 (District Court stating that “LGE declared the ’373 patent essential to the LTE standard”).

Appellees have never taken the position that the ’373 Patent covers CDMA technology. Indeed, Evolved asserted in its answering brief before the District Court that the technology covered by the ’373 Patent²¹ “is employed in LTE, an OFDM-based standard, and was not employed by the previous standards, including those that employed CDMA techniques, such as 3G.” Appx3473. Appellees never disputed this characterization. To the contrary, Appellees argued that the ’373 Patent is subject to the Covenants because patents declared essential to LTE standards are “LICENSEE’s Commercially Necessary IPR.” Appx3864-3869.

²¹ As Evolved explained before the District Court, “[t]he ’373 Patent relates to a method of transmitting and receiving radio connection information that allows a cellular telephone to access the network using predefined access information that is determined by the cell tower—or ‘base station’—that the telephone is attempting to access.” Appx3473.

Because there is no evidence that the '373 Patent is technically or commercially necessary to practice CDMA technology, Appellees' license defense fails. Appellees' license defense is premised on the Customer Covenant. They contend that LGE provided a covenant not to sue Qualcomm's customers for infringement of the '373 Patent (among others), and that they are each customers of Qualcomm because they purchase baseband chipsets from Qualcomm and incorporate them into their devices. Appx2176. And because a covenant not to sue is equivalent to a license, they contend that "Evolved may not assert claims that Defendants infringe the '373 patent for accused products incorporating the Qualcomm chipsets." *Id.*; see also Appx2183 (citing *De Forest Radio Telephone & Telegraph Co. v. United States*, 273 U.S. 236, 242 (1927); *TransCore*, 563 F.3d at 1275, 1276). But, as explained above, the Customer Covenant does *not* cover the '373 Patent. It accordingly was not a proper basis for summary judgment.

Appellees' exhaustion defense fails for the same reason. Appellees contend that Evolved's rights in the '373 Patent were exhausted as a result of the Qualcomm Covenant. Appx2176. They argue that the covenant not to sue Qualcomm is equivalent to licensing Qualcomm to

practice the '373 Patent. *Id.*; see also Appx2191-2192. Thus, they argue, “Evolved’s rights to sue purchasers of Qualcomm components for infringement of the '373 patent have been exhausted.”²² Appx2176. But only an “*authorized* sale of an article that substantially embodies a patent exhausts the patent holder’s rights and prevents the patent holder from invoking patent law to control postsale use of the article.” *Quanta Computer, Inc. v. LG Elecs., Inc.*, 553 U.S. 617, 638 (2008) (emphasis added). As explained above, the Qualcomm Covenant did not cover the '373 Patent, so Qualcomm was not authorized to sell components that embody the '373 Patent. Appellees’ exhaustion defense thus was also not a proper basis for summary judgment. Because neither of the grounds for summary judgment were proper, the Court should reverse the judgment and remand for further proceedings.

²² The District Court appeared to misunderstand Appellees’ argument. It held that “Qualcomm sold its chipsets to *LGE*, exhausting its patent rights and required LGE to cross-license its patents, without a royalty, in order to purchase the chipsets.” Appx35 (emphasis added). Evolved did not sue LGE, so any sales of chipsets from Qualcomm to LGE are irrelevant. The question is whether Evolved’s rights in the '373 Patent were exhausted with respect to chipsets sold by Qualcomm to *Appellees*. As explained above, they were not.

II. AT THE VERY LEAST, THE DISTRICT COURT'S JUDGMENT SHOULD BE REVERSED AS TO CLAIMS OF INFRINGEMENT FOR ACTIVITIES AFTER TERMINATION OF THE 1993 CDMA AGREEMENT.

Regardless of whether the District Court properly held that the Qualcomm Covenant and Customer Covenant covered the '373 Patent, it erred by granting Appellees' motion for summary judgment in full and dismissing the cases. The undisputed evidence shows that LGE terminated the 1993 CDMA Agreement effective December 31, 2018. Appx4599-4611. The Covenants thus no longer applied as of that date. The District Court, however, granted Appellees' motion for summary judgment in full and entered judgment as to *all* Qualcomm-based products without even mentioning the termination. Appx1-5; *see also* Appx36-37. This was error. Evolved's infringement claims were not limited to pre-termination infringement. Thus, at the very least, the Court should reverse the judgment as to infringement claims for post-termination activity and remand to the District Court for trial.

It is undisputed that LGE terminated the 1993 CDMA Agreement as amended effective December 31, 2018. Under the 2007 Amendment, "either Party shall be entitled to terminate the License Agreement [the 1993 CDMA Agreement] as of December 31, 2018 by providing written

notice to the other Party no later than June 1, 2018.” Appx2345; *see also* Appx2357 (defining “License Agreement”), Appx3530. LGE did just that—in May 2018, LGE sent a letter to Qualcomm stating that it intended to terminate the 1993 CDMA Agreement as of December 31, 2018. Appx4606-4607, Appx4610-4611. This notice thus complied with the applicable termination provisions and terminated the 1993 CDMA Agreement, as amended, including the Qualcomm Covenant and Customer Covenant contained therein. Appellees have never disputed that the termination was effective.

Because the 1993 CDMA Agreement, as amended, including the Qualcomm Covenant and Customer Covenant, were terminated as of December 31, 2018, the Qualcomm Covenant and Customer Covenant cannot provide the basis for a license or exhaustion defense for infringing activities after that date. To the extent that Evolved ever had an obligation not to sue Appellees or Qualcomm for infringement of the ’373 Patent under the Covenants, its obligation ended as of that date. *Cf. Medtronic AVE Inc. v. Advanced Cardiovascular Sys.*, 247 F.3d 44, 60 (3d Cir. 2001) (holding, in the context of a covenant not to sue, that “absent a provision stating otherwise, assignment of a contract will result in the

assignee stepping into the shoes of the assignor with regard to the rights that the assignor held and not in an expansion of those rights to include those held by the assignee”); *Epistar Corp. v. Int’l Trade Comm’n*, 566 F.3d 1321, 1333 (Fed. Cir. 2009) (“Black letter contract law states that the assignment of a contract to an assignee . . . only changes the obligated party, not the scope of the obligation.”).

The District Court granted Appellees’ motion for summary judgment and dismissed the cases in full without ever addressing the effect of LGE’s termination of the 1993 CDMA Agreement on Evolved’s infringement claims. This was error. Evolved’s infringement claims included infringement occurring after December 31, 2018. Evolved’s Complaints did not limit Evolved’s infringement allegations to any particular time period—they alleged infringement by “making, using, selling, offering for sale, or importing into the United States . . . products and/or methods covered by one or more claims of the ’373 Patent, including but not limited to cellular telephones, tablet computers, and/or other devices with LTE capabilities that comply with the LTE standards.” Appx304; *see also* Appx789, Appx1032, Appx1370, Appx1694. Evolved’s Complaints similarly prayed for relief against future

infringement, requesting that the District Court issue a permanent injunction or, “[i]f a permanent injunction is not granted, a judicial determination of the conditions for future infringement such as an ongoing royalty.” Appx311-312, Appx795, Appx1039, Appx1376, Appx1700-1701.

Moreover, in a joint letter to the District Court filed after the verdict in Evolved’s case against Apple, Evolved advised the District Court that, before the trials against the remaining parties, Evolved would need updated sales figures for the accused products, as well as an opportunity for its damages expert to supplement his expert report based on those numbers.²³ Appx4690. And, at the hearing, the District Court acknowledged that “there’s going to have to be some limited discovery on damages so that when we try the case, it comes to the jury with relatively current damages and not damages that go all the way back to 2017.” Appx4791-4792.

²³ Fact discovery closed on April 10, 2017. *See* Appx163. Thus, at the time that the District Court ruled on Appellees’ motion for summary judgment, Evolved had only been able to obtain discovery as to pre-termination infringement. Appellees opposed Evolved’s request for updated sales figures and supplemental expert reports because “[t]he cut-off dates for fact and expert discovery [were] long past, and reopening discovery would be inefficient for the Court and the parties.” Appx4691.

The Court should thus reverse the District Court's judgment as to claims for post-termination infringement and remand for trial. It is undisputed that LGE terminated the 1993 CDMA Agreement, as amended, effective December 31, 2018, and thus terminated the Covenants. Evolved's claims for infringement include post-December 31, 2018 activities. The Covenants do not bar those claims. Evolved should, at the very least, be permitted to proceed to trial on them.

CONCLUSION

The District Court erroneously held that Evolved's claims for infringement of the '373 Patent were barred by the doctrines of license and exhaustion. The plain language of the 1993 CDMA Agreement as amended does not cover the '373 Patent. The Court should therefore reverse the District Court's judgment and remand for further proceedings.

Moreover, regardless of whether the District Court properly held that the 1993 CDMA Agreement, as amended, covers the '373 Patent, the District Court erred by granting Appellees' motion for summary judgment in full and dismissing the cases. The undisputed evidence shows that the 1993 CDMA Agreement, and thus the Covenants therein,

were terminated effective December 31, 2018. The Covenants therefore do not apply to Evolved's claims for infringement occurring after that date. The Court should thus, at the very least, reverse the District Court's judgment as to post-December 31, 2018 infringement and remand for trial.

Term/Provision	Source	Language
Qualcomm Covenant	Section 7, 2007 Amendment to CDMA Agreement (Appx2340)	5.1 <u>Covenant to QUALCOMM. LICENSEE</u> , on behalf of itself and its Affiliates, covenants not to Assert any of LICENSEE's Intellectual Property and/or its Affiliates' Intellectual Property against (i) QUALCOMM or its Affiliates for making, having made, using, importing, leasing, selling, or otherwise disposing of Components (including but not limited to associated software) For the avoidance of doubt, LICENSEE's Intellectual Property and its Affiliates' Intellectual Property shall not include any intellectual property rights acquired or developed after December 31, 2006 by LICENSEE or its Affiliates. . . .
Customer Covenant (including definition of "LICENSEE's Limited Intellectual Property")	Section 7, 2007 Amendment to CDMA Agreement (Appx2340- Appx2343)	5.2 <u>Covenant to QUALCOMM Customers. LICENSEE</u> , on behalf of itself and its Affiliates, covenants not to Assert any of LICENSEE's Limited Intellectual Property against (i) a QUALCOMM Customer or its Affiliates (as such term would be applied if such customer were a Party) for making, having made, using, importing, selling, leasing or otherwise disposing of Covenant Products where the alleged basis for infringement arises from the use or incorporation of

Term/Provision	Source	Language
		<p>QUALCOMM Components (including but not limited to associated software) in such Covenant Products . . . For purposes of this Section 5.2, “LICENSEE’s Limited Intellectual Property means LICENSEE’s Intellectual Property and its Affiliates’ Intellectual Property which LICENSEE and/or its Affiliates would not have been entitled to Assert against a QUALCOMM Customer, its Affiliates or Covered Third Parties had (a) the licenses granted to QUALCOMM in Sections 6.1.1 and 6.1.2 of the License Agreement with respect to Components remained in effect and (b) such licenses covered all of the intellectual property rights included within the definition of LICENSEE’s Intellectual Property (as amended by this Amendment) and Affiliates’ Intellectual Property (as amended by this Amendment) prior to such licenses being replaced by the covenants set forth in Sections 5.1 and 5.2 of the 2004 Amendment . . . For the avoidance of doubt, “LICENSEE’s Limited Intellectual Property” and its Affiliates’ Intellectual Property shall not include any intellectual property rights acquired or developed after December 31, 2006 by</p>

Term/Provision	Source	Language
		<p>LICENSEE or its Affiliates; and (ii) “Covenant Products” means an entity’s Subscriber Units and Infrastructure Equipment that incorporate Components purchased by such entity from QUALCOMM or its Affiliates. . . .</p>
<p>“LICENSEE’s Intellectual Property”</p>	<p>Section 1, 1993 CDMA Agreement (Appx2213)</p>	<p>“LICENSEE’s Intellectual Property” means both LICENSEE’s Technically Necessary IPR and LICENSEE’s Commercially Necessary IPR</p>
<p>“LICENSEE’s Commercially Necessary IPR”</p>	<p>Section 1, 1993 CDMA Agreement (Appx2213-Appx2214)</p>	<p>“LICENSEE’s Commercially Necessary IPR” means the following intellectual property of LICENSEE: LICENSEE’s (and its Affiliate’s) patents and patent applications . . . which LICENSEE (or its Affiliate) has acquired or developed and is in possession of as of the Effective Date, which LICENSEE (or its Affiliate) has the right to license to QUALCOMM in accordance with this Agreement, and which are commercially necessary to use, make and/or sell Subscriber Units, Cordless Base Stations, Channel Units and/or CDMA Enabling Infrastructure Equipment, and any Improvements to any of such Commercially Necessary IPR which is</p>

Term/Provision	Source	Language
<p>“LICENSEE’s Technically Necessary IPR”</p>	<p>Section 1, 1993 CDMA Agreement (Appx2214)</p>	<p>developed or acquired during the Improvement Period</p> <p>“LICENSEE’s Technically Necessary IPR” means the following intellectual property of LICENSE: LICENSE’s (and its Affiliate’s) patents and patent applications . . . which LICENSE (or its Affiliate) has acquired or developed and is in possession of as of the Effective Date, which LICENSEE (or its Affiliate) the right to license to QUALCOMM in accordance with this Agreement, which are technically necessary to use, make and/or sell Subscriber Units, Cordless Base Stations and/or Infrastructure Equipment (excluding equipment in the mobile telephone switching office), and any Improvements to any of such Technically Necessary IPR developed or acquired during the Improvement Period</p>
<p>“Subscriber Unit”/“Subscriber Units”</p>	<p>Section 1, 2004 Amendment to CDMA Agreement (Appx2313)</p>	<p>“Subscriber Unit” shall mean a Complete CDMA Telephone or a CDMA Modem Card, and any subsequent generation products.</p> <p>“Subscriber Units” shall mean Complete CDMA Telephones and CDMA Modem Cards, and any subsequent generation products.</p>

Term/Provision	Source	Language
“Complete CDMA Telephone”	Section 1, 2010 Amendment to CDMA Agreement (Appx2440)	“Complete CDMA Telephone” means any complete CDMA (including multi-mode) terminal, including but not limited to a fixed, mobile, transportable or portable telephone or data terminal, which (i) incorporates all or any part of the QUALCOMM Intellectual Property and (ii) can be used, without any additional equipment or components being attached thereto, to initiate and/or receive Wireless communications. The term “Complete CDMA Telephone” shall not mean a CDMA Modem Card and for the avoidance of doubt, a Complete CDMA Telephone into which a CDMA Modem Card is embedded is a Complete CDMA Telephone, and not a CDMA Modem Card.
“Wireless”	Section 1, 1993 CDMA Agreement (Appx2217)	“Wireless” and “Wireless Applications” means only CDMA-based Digital Cellular Systems, Personal Communications Systems, Wireless PABX Systems, commercial telemetry for information gathering, commercial security systems for alarming applications, RF LAN applications, Cordless Telephone applications and any other CDMA wireless applications currently licensed by QUALCOMM to its existing CDMA Subscriber Unit and

Term/Provision	Source	Language
	Section 1, 2010 Amendment to 1993 CDMA Agreement (Appx2443)	<p>Infrastructure Equipment licensees as of the Effective Date of this Agreement. . . .</p> <p>The definition of “Wireless” and/or “Wireless Applications” in the License Agreement is hereby clarified as follows: “Wireless” and “Wireless Applications” includes, without limitation, (i) any CDMA-based wireless wide area standard, including the CDMA2000 family of standards (e.g., 1xRTT, 1x-EVDO, 1x-EVDO Rev. A, 1x-EVDO Rev. B, BCMCS), the WCDMA family of standards (e.g., UMTS, HSPA, HSPA+, HSDPA, HSUPA, MBMS, TD-CDMA) and TD-SCDMA; and (iii) any updates or revisions to any of the foregoing.</p>

Dated: April 30, 2020

Respectfully Submitted,

/s/ Eric M. Albritton

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*Attorneys for Appellant Evolved Wireless,
LLC*

CERTIFICATE OF SERVICE

I certify that on April 30, 2020, I served a copy of the foregoing on counsel of record by electronic means.

Dated: April 30, 2020

/s/ Christopher G. Granaghan
Christopher G. Granaghan

Counsel for Appellant Evolved
Wireless, LLC

CERTIFICATE OF COMPLIANCE

This brief complies with the type-volume limitation of Federal Circuit Rule (a) because it contains 11,355 words, excluding the parts of the brief exempted by Federal Rule of Appellate Procedure 32(f).

In addition, this brief complies with the typeface requirements of Federal Rule of Appellate Procedure 32(a)(5) and the style requirements of Federal Rule of Appellate Procedure 32(a)(6) because this brief has been prepared in a proportionally spaced typeface using MS Word – Office 365 in 14-point Century Schoolbook.

Dated: April 30, 2020

/s/ Eric M. Albritton
Eric M. Albritton

Counsel for Appellant Evolved
Wireless, LLC

**CERTIFICATE OF COMPLIANCE - BRIEFS CONTAINING
MATERIAL SUBJECT TO A PROTECTIVE ORDER**

This brief complies with the limitations set forth in Fed. Cir. R.
28(d) and contains 0 words (including numbers) marked as confidential.
Only material in the addendum is marked as confidential.

Dated: April 30, 2020

/s/ Eric M. Albritton
Eric M. Albritton

Counsel for Appellant Evolved
Wireless, LLC

Addendum

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1/7/2020	Judgment, Civil Action No. 15-cv-00545-JFB-SRF (Docket No. 491)	Appx5
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10/5/2010	United States Patent Number 7,809,373 B2	Appx38-52

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

EVOLVED WIRELESS, LLC,)	
)	
Plaintiff,)	
)	
v.	)	Civil Action No. 15-543-JFB-SRF
)	
HTC CORPORATION and)	
HTC AMERICA, INC.,)	
)	
Defendants.)	

EVOLVED WIRELESS, LLC,)	
)	
Plaintiff,)	
)	
v.	)	Civil Action No. 15-544-JFB-SRF
)	
LENOVO GROUP LTD., LENOVO)	
(UNITED STATES) INC., and)	
MOTOROLA MOBILITY,)	
)	
Defendants.)	

EVOLVED WIRELESS, LLC,)	
)	
Plaintiff,)	
)	
v.	)	Civil Action No. 15-545-JFB-SRF
)	
SAMSUNG ELECTRONICS CO., LTD.)	
and SAMSUNG ELECTRONICS)	
AMERICA, INC.)	
)	
Defendants.)	

EVOLVED WIRELESS, LLC,)	
)	
Plaintiff,)	
)	
v.	)	Civil Action No. 15-546-JFB-SRF
)	
ZTE (USA) INC.,)	
)	
Defendant.)	
_____)	
EVOLVED WIRELESS, LLC,)	
)	
Plaintiff,)	
)	
v.	)	Civil Action No. 15-547-JFB-SRF
)	
MICROSOFT CORPORATION,)	
MICROSOFT MOBILE OY and)	
NOKIA INC.,	)	SEALED
)	
Defendants.)	

JUDGMENT

Pursuant to the Memorandum and Order entered this date,

1. Judgment is entered in favor of Defendants HTC Corporation and HTC America, Inc. and against plaintiff Evolved Wireless, LLC in Civil Action No. in 1:15-cv-543 and that action is dismissed.

2. Judgment is entered in favor of Defendants Lenovo Corp. and Motorola Mobility, LLC and against plaintiff Evolved Wireless, LLC with respect to claims against products that contain Qualcomm baseband chipsets in Civil Action No. in 1:15-cv-544; claims involving those chipsets in Civil Action No. in 1:15-cv-544 are dismissed; claims involving other baseband chipsets in Civil Action No. in 1:15-cv-544 are stayed pending resolution of the appeal in *Evolved Wireless LLC v. Apple Inc.*, No. 1:15-cv-542.

3. Judgment is entered in favor of Defendants Samsung Elecs. Co., and Samsung Electronics America, Inc. and against plaintiff Evolved Wireless, LLC, with respect to claims against products that contain Qualcomm baseband chipsets in Civil Action No. in 1:15-cv545; claims involving those chipsets in Civil Action No. in 1:15-cv-545 are dismissed; claims involving other baseband chipsets in Civil Action No. in 1:15-cv-545 are stayed pending resolution of the appeal in *Evolved Wireless LLC v. Apple Inc.*, No. 1:15-cv-545.

4. Judgment is entered in favor of Defendants ZTE (USA) Inc. and against plaintiff Evolved Wireless, LLC in Civil Action No. in 1:15-cv-546 and that action is dismissed.

5. Judgment is entered in favor of Defendants Microsoft Corp., Microsoft Mobile OY and Nokia Inc. and against plaintiff Evolved Wireless, LLC in Civil Action No. in 1:15-cv-547 and that action is dismissed.

DATED this 3rd day of December, 2019.

BY THE COURT:

s/ Joseph F. Bataillon
Senior United States District Judge

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

EVOLVED WIRELESS, LLC,)	
)	
Plaintiff,)	
)	
v.	)	Civil Action No. 15-544-JFB-SRF
)	
MOTOROLA MOBILITY,)	
)	
Defendant.)	

AMENDED JUDGMENT

Pursuant to the Memorandum and Order entered on December 3, 2019 (D.I. 399), the Judgment dated December 3, 2019, in this action (D.I. 400) is modified as follows:

2. Judgment is entered in favor of Defendant Motorola Mobility, LLC and against plaintiff Evolved Wireless, LLC in Civil Action No. in 1:15-cv-544 and that action is dismissed.

DATED this 30th day of December, 2019.

BY THE COURT:

s/ Joseph F. Bataillon
Senior United States District Judge

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

EVOLVED WIRELESS, LLC,

Plaintiff,

V.

SAMSUNG ELECTRONICS CO., LTD.,
AND SAMSUNG ELECTRONICS
AMERICA, INC.,

Defendants.

Civil Action No. 15-545-JFB-SRF

JUDGMENT

Plaintiff Evolved Wireless, LLC (“Plaintiff” or “Evolved”) and Defendants Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (collectively, “Defendants” or “Samsung”) have stipulated that the Accused Samsung Products in this case that do not incorporate Qualcomm baseband processors (collectively, “Removed Samsung Products”) are withdrawn from this case without prejudice (D.I. 490). The parties agree that the withdrawal without prejudice of the Removed Samsung Products resolves all remaining “claims involving other baseband chipsets in Civil Action No. in 1:15-cv-545” as referred to in the Court’s December 3, 2019 Judgment (D.I. 483).

Therefore, pursuant to the parties' stipulation (D.I. 490),

IT IS ORDERED:

1. Final judgment is entered in favor of Defendants Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. and against plaintiff Evolved Wireless, LLC in Civil Action No. in 1:15-cv-545 and that action is dismissed.

DATED this 7th day of January, 2020.

BY THE COURT:

s/ Joseph F. Bataillon
Senior United States District Judge

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

EVOLVED WIRELESS, LLC,)	
)	
Plaintiff,)	
)	
V.	)	Civil Action No. 15-543-JFB-SRF
)	
HTC CORPORATION and)	
HTC AMERICA, INC.,)	
)	
Defendants.)	

EVOLVED WIRELESS, LLC,)	
)	
Plaintiff,)	
)	
V.	)	Civil Action No. 15-544-JFB-SRF
)	
LENOVO GROUP LTD., LENOVO)	
(UNITED STATES) INC., and)	
MOTOROLA MOBILITY,)	
)	
Defendants.)	

EVOLVED WIRELESS, LLC,)	
)	
Plaintiff,)	
)	
V.	)	Civil Action No. 15-545-JFB-SRF
)	
SAMSUNG ELECTRONICS CO., LTD.)	
and SAMSUNG ELECTRONICS)	
AMERICA, INC.)	
)	
Defendants.)	

EVOLVED WIRELESS, LLC,)	
)	
Plaintiff,)	
)	
V.	)	Civil Action No. 15-546-JFB-SRF
)	
ZTE (USA) INC.,)	
)	
Defendant.)	
_____)	
EVOLVED WIRELESS, LLC,)	
)	
Plaintiff,)	
)	
V.	)	Civil Action No. 15-547-JFB-SRF
)	
MICROSOFT CORPORATION,)	
MICROSOFT MOBILE OY and)	
NOKIA INC.,	)	SEALED
)	
Defendants.)	

MEMORANDUM and ORDER

This matter is before the Court on the parties’ stipulation to stay ([D.I. 477](#) in *Evolved Wireless, LLC (“Evolved”) v. Samsung Elecs. Co., Samsung Elecs. Am., Inc. (“Samsung”)*, No. 1:15cv545),¹ and on reconsideration of the Court’s earlier decision ([D.I. 447](#) in *Samsung*, No. 1:15CV545) to defer determination of the parties’ cross-motions for summary judgment based on a license or patent exhaustion and the plaintiff’s motion for

¹ For ease of reference, the Court will refer only to pleadings in *Evolved v. Samsung*, No. 1:15cv545, although there are corresponding similar, if not identical, motions and briefs in the other actions. Future references to the record will be to filings in the *Samsung* case, unless otherwise noted.

summary judgment on the defendants' counterclaim for breach of contract. [D.I. 224](#) and 226². The Court held oral argument on the matter on September 13, 2019. [D.I. 481](#).

These are related actions for patent infringement. Evolved alleges infringement of certain claims of United States Patent Nos. 7,809,373 ("the '373 patent") and 7,881,236 ("the '236 Patent"). Only the '373 patent is at issue in these motions and is directed to wireless communications. The '373 patent purportedly relates to the handover of a mobile device from one cell tower base station to another cell tower base station in a cellular network. [D.I. 1](#), Complaint at 10. The defendants have asserted license and patent exhaustion as an affirmative defense and they also assert a counterclaim for an alleged breach of Evolved's contractual duty to grant licenses on fair, reasonable and nondiscriminatory ("FRAND") terms.³ [D.I. 68](#), Answer and Counterclaim at 20, 24.

I. BACKGROUND

A. Procedural History

Earlier in these actions, the Court deferred ruling on the parties' cross-motions motions for summary judgment based on a license agreement and a covenant not to sue and denied the plaintiff's motion for summary judgment on the defendants' counterclaim for breach of contract. [D.I. 447](#), Memorandum and Order. Noting that the record

² Evolved's corresponding motions for summary judgment in the related cases are: D.I. 205 in *Evolved v. HTC Corp. and HTC America, Inc.* ("HTC"), 1:15cv543; D.I. 184 in *Evolved v. Lenovo Corp. and Motorola Mobility, LLC* ("Motorola"), 1:15cv544; D.I. 197 in *Evolved v. ZTE (USA) Corp.* ("ZTE"), 1:15cv546; and D.I. 197 in *Evolved v. Microsoft Corp.* ("Microsoft"), 1:15cv547, and the defendants' corresponding summary judgment motions in the related cases are D.I. 205 in *HTC*, 1:15cv543; D.I. 184 in *Motorola*, 1:15cv544; D.I. 224 in *Samsung*, 1:15cv545; D.I. 197 in *ZTE*, 1:15cv546; and D.I. 197 in *Microsoft*, 1:15cv547. The parties' Stipulation to Stay Proceedings Pending Resolution of Appeals (D.I. 432 in 1:15cv543; D.I. 394 in 1:15cv544; D.I. 477 in 1:15cv545; and D.I. 397 in 1:15cv546; D.I. 415 in 1:15cv547). The Court's ruling applies with equal force to those motions in the related cases.

³ The breach of contract counterclaim is based on obligations imposed on members of Standard Setting Organizations to license standard essential patents.

contained only heavily redacted copies of the Licensing Agreement and amendments, the Court found it had no competent evidence as to either parties' position. *Id.* at 20. Because the defendants' motions involved contract interpretation and an equitable remedy—issues of law—the Court stated it would conduct a bench trial on the issue following the jury trials on infringement and invalidity issues. *Id.* The Court also found “[t]he real significance of a FRAND obligation is as a measure of damages for infringement of a “standard essential patents” (“SEPs”) patent” and it “determines the reasonableness of a royalty or license[.]” (*Id.* at 16-17). The Court found the breach of FRAND counterclaim “comes into play only on a finding of infringement, and then only if the plaintiff’s demand exceeds the amount the jury determines is the reasonable royalty as measured by the FRAND.” *Id.* at 17. The breach of FRAND issue is connected to the license/patent exhaustion defense that involves a license agreement between Evolved’s predecessor, LGE, and Qualcomm, Inc. (“Qualcomm”), the supplier of a component of the defendants’ accused products.

The related case of *Evolved Wireless, LLC v. Apple, Inc.* (“Apple”), No. 1:15cv542, was tried to a jury from March 26, 2019 to April 4, 2019, and resulted in a finding of no infringement and a verdict in favor of Apple (D.I. 519 in *Apple*, 1:15cv542⁴). That action is now on appeal to the Federal Circuit Court of Appeals. D.I. 549 in *Apple*, 1:15cv542, Notice of Appeal, Appeals Court Case No. 19-2362. The parties have moved to stay the present actions pending that appeal. D.I. 477 in 1:15CV545. It appears appropriate to consider the issues that were held in abeyance at this time. To the extent that there

⁴ The Court dismissed Apple’s defenses of license and patent exhaustion without prejudice to reassertion (D.I. 541).

remain issues that are not resolved in this Memorandum and Order, the Court finds the motion to stay should be granted.

The issue for resolution is whether downstream manufacturers are protected from this infringement suit by a licensing agreement executed by LG Electronics, Inc. (“LGE”), the original patent owner, and Qualcomm LLC, a chip maker. The defendants contend that the licensing agreement bars infringement claims with respect to the defendants’ accused products that incorporate the Qualcomm chipsets. They also assert that, even without the Agreement, the infringement actions are barred by the doctrine of patent exhaustion.

B. Additional Discovery

A threshold issue is whether further discovery is necessary before the Court can resolve the licensing issue. The record shows Evolved is a successor to TQ Lambda, LLC (“TQ Lambda”). TQ Lambda purchased the ’373 Patent from LGE in 2014. In support of their motions, the defendants have submitted heavily redacted copies of a series of contracts executed between LGE and Qualcomm from 1993 to 2010. [D.I. 227](#), Declaration of Michael D. Jay (“Jay Decl.”), Exhibits (“Exs.”) A-O. The contract between LGE and TQ Lambda is also in evidence. [D.I. 227](#), Jay Decl., Ex. J, Patent Purchase Agreement (“PPA”). At the hearing, the parties each conceded that the terms of the contracts and licensing agreements at issue are not ambiguous, the contracts could interpret without resort to parol evidence, and the motions could be decided as a matter of law from review from the text of the contracts at issue. [D.I. 481](#), Transcript (“Tr.”) at 37, 42, 70, 80⁵.

⁵ Evolved qualified its concession with the proviso that, if the court were to consider Qualcomm evidence on the issue, it reserved the right to conduct discovery with respect to LGE. The Court did not consider the

As noted, the documents submitted to the Court in support of the motions are heavily redacted. The parties have now assured the Court that redacted portions of the Agreements would not affect the determination of this issue. [D.I. 448](#), Tr. at 59. The record shows that Qualcomm produced the redacted documents to both parties at the defendants' request.⁶ *Id.* at 58-59. The documents were authenticated by a Qualcomm representative. *Id.* at 60. The defendants are satisfied that the unredacted portions of the agreements are complete as they are relevant to this case. *Id.* at 59. Counsel for Evolved stated at the hearing that its predecessor purchased the patents at issue without being provided unredacted copies of the Agreement but were assured by LGE that redacted portions would not affect the purchaser's rights. *Id.* at 43-50; [D.I. 349-1](#), Deposition of Mark Roche at 124. Counsel stated that it was his understanding that the documents filed in these actions in support of the defendants' motions are largely consistent with the documents provided by LGE to Evolved's predecessor, TQ Lambda. *Id.* at 15. The Court is satisfied that the documents, as redacted, represent what TQ Lambda bought when it purchased the patent portfolio from LGE. The terms of the contracts at issue are not ambiguous. The Court finds that no further discovery is necessary and the defendants' motions are ripe for consideration at this time.

Qualcomm testimony, nor did it consider Declaration of Younghun Song, which had been the object of a motion to strike by the defendants ([D.I. 365](#)).

⁶ The license agreements have been the subject of much dispute in discovery. In February 2018, United States Magistrate Judge Fallon denied Evolved's request to seek discovery from LGE, finding that even though Evolved knew of the 1993 SULA Agreement, it did not "disclose the existence of the 1993 Agreement to defendants during fact discovery, despite knowing that defendants pursued discovery regarding the Qualcomm-LGE license agreements for month since at least March 2016." [D.I.356](#) in Apple, No. 1:15cv542.

C. Technological Background Generally

Some background facts are gleaned from recent litigation involving Qualcomm. See *Fed. Trade Comm'n v. Qualcomm Inc.*, No. 17-CV-00220-LHK, 2019 WL 2206013, at *3 (N.D. Cal. May 21, 2019) (“*FTC*”);⁷ *In re Qualcomm Antitrust Litig.*, No. 17-MD-02773-LHK, 2018 WL 4110498, at *1 (N.D. Cal. Aug. 29, 2018);⁸ and *Apple Inc. v. Qualcomm Inc.*, No. 3:17-cv-00108-GPC-MDD, 2017 WL 3966944, at *1-3 (S.D. Cal. September 7, 2017). Those cases provide insight into Qualcomm’s licensing and marketing practices. The Court also relies on representations by counsel at oral argument, and on the Court’s familiarity with evidence and testimony in the trial of the related case, *Apple*. The background facts are intended only to provide context for the Court’s decision.

Cellular communications depend on widely distributed networks that implement cellular communications standards that have evolved over four “generations.” First-generation cellular communications standards were developed in the 1980s and those standards support analog transmissions of voice calls. Second-generation (“2G”) cellular communications were developed in the early 1990s and those standards support digital transmissions of voice calls. The leading 2G standards are the Global System for Mobile

⁷ In that case, the Federal Trade Commission alleged that Qualcomm violated anti-trust laws, in part, by conditioning the supply of its modem chips (or semiconductor baseband processors) on the purchase of its patents and by requiring anticompetitive exclusive dealing contracts. *FTC v. Qualcomm*, No. 17-CV-00220-LHK, 2019 WL 2206013, at *25-27. An important factor in the finding of anticompetitive behavior was Qualcomm’s refusal to supply smart phone makers with its chipsets unless the original equipment manufacturers cross-licensed their own SEPs to Qualcomm. *Id.* at *4, *7, *26; see also *Fed. Trade Comm’n v. Qualcomm Inc.*, 935 F.3d 752, 755 (9th Cir. 2019) (granting motion to stay pending appeal).

⁸ In a class action anti-trust suit by purchasers of cellphone handsets, the district court noted that although Qualcomm is required to license its cellular SEPs on FRAND terms to both original equipment manufacturers competing chip suppliers, Qualcomm’s practice was to refuse to license its cellular SEPs to competing modem chip manufacturers. See *In re Qualcomm Antitrust Litig.*, 328 F.R.D. 280, 288 (N.D. Cal. 2018).

Communications standard (“GSM”) and second-generation Code Division Multiple Access standard (“2G-CDMA”).

In the late 1990s, third-generation (“3G”) cellular communications standards were introduced. The leading 3G standards are the Universal Mobile Telecommunications System (“UMTS”) and third-generation Code Division Multiple Access (“3G-CDMA”) standards. In late 2009, fourth-generation (“4G”) cellular communications standards were introduced. These standards support substantially higher data-transmission speeds than 3G standards. 4G is an upgrade to 3G/UTMS/wideband CDMA (“WCDMA”). [Stern, 19 Minn. J.L. Sci. & Tech. at 128](#). The leading 4G standard is Long-Term Evolution (“LTE”). Orthogonal frequency division multiple access (“OFDMA”) is a technology used in the LTE standard. See generally Richard H. Stern, *Who Should Own the Benefits of Standardization and the Value It Creates?*, [19 Minn. J.L. Sci. & Tech. 107, 127-30 \(2018\)](#) (“Stern”). The first generation of LTE was standardized in 2008, but there have been several new LTE releases as standards contributors develop new features. [FTC, No. 17-CV-00220-LHK, 2019 WL 2206013](#), at *3.

Cellular communications standards, such as CDMA and LTE standards, are adopted by Standards Setting Organizations. Standards Setting Organizations that adopt cellular telecommunications standards include the Institute of Electrical and Electronics Engineers (“IEEE”) in the U.S., the European Telecommunication Standards Institute (“ETSI”), the Telecommunications Industry Association, and the International Telecommunications Union. The specifications ensure that cellular industry participants—including modem chip suppliers, handset original equipment manufacturers, infrastructure companies, and carriers—develop standard-compatible

devices that can communicate with each other. The Third Generation Partnership Project (“3GPP”) and the Third Generation Partnership Project 2 (“3GPP2”) are global collaborative partnerships of Standards Setting Organizations and other industry participants that develop technical specifications for cellular standards. [FTC, 2019 WL 2206013](#), at *2. LTE uses OFDMA technology for downlink transmissions and single-carrier frequency division multiple access technology for uplink transmissions (*Id.*). LTE was standardized by 3GPP (*Id.* at 4).

Patents that cover technology that is incorporated into a standard are known as SEPs. Parties that participate in the standards development process must commit to license their SEPs on FRAND terms to firms that implement the standard. Standards Setting Organizations require participants to publicly disclose any claimed SEPs and promise to license [SEPs] to anyone who practices the standard on a royalty-free or FRAND basis. *In re Qualcomm*, No. 17-MD-02773-LHK, [2018 WL 4110498](#), at *2. Generally, the Standards Setting Organizations’ practice is to permit firms simply to declare which of their patents are SEPs and the Standards Setting Organizations do not have a mechanism for verifying the essentiality of any patent to the technology embodied in a standard. *Stern*, 19 Minn. J.L. Sci. & Tech. at 130 & n. 80. Qualcomm holds thousands of FRAND-encumbered SEPs that comprise ETSI’s 3G/UMTS and 4G/LTE cellular communication standards. *Apple*, No. 3:17-cv-00108-GPC-MDD, [2017 WL 3966944](#), at *1.

In order to communicate with a cellular communications network, a cellphone handset must contain a semiconductor device known as a baseband processor, “modem chip,” or “chipset.” More specifically, in order to communicate with a particular cellphone

network, the handset must contain a modem chip that complies with the cellular communications standards that the particular cellphone network supports. Modem chips are either “single-mode” or “multimode.” Whereas a single-mode modem chip supports only one cellular standard (like CDMA or UMTS), a multimode modem chip supports multiple standards in one chip. For example, a handset that contains a modem chip that complies only with UMTS standards cannot communicate with a cellular network that uses 3G-CDMA standards. A “CDMA multimode” modem chip is a modem chip that supports CDMA and additional standards. See generally, *In re Qualcomm*, No. 17-MD-02773-LHK, 2018 WL 41104982018, at *2-*5.

To be used on a network that deploys LTE—the leading 4G standard used by major cellular network operators—the handset must ordinarily contain a multi-mode baseband processor that complies with LTE standards and is also “backward compatible” with 2G and 3G standards. See *Stern*, 19 Minn. J.L. Sci. & Tech. at 131-32, 138. This is because LTE network infrastructure generally supports data, rather than voice, traffic and therefore, to transmit voice calls, a baseband processor must comply with 2G and 3G standards. *Id.* at 132. Also, network operators have continued to use the prior standards and have not yet replaced their 2G and 3G infrastructure with the new 4G infrastructure. *Id.* Accordingly, most manufacturers must purchase multimode chips in order to make mobile phones that can function on the major U.S. wireless networks. Cellular handsets are produced by original equipment manufacturers such as the defendants herein.

Qualcomm is the leading supplier of modem chips to original equipment manufacturers worldwide. In particular, Qualcomm is dominant in the supply of two types of modem chips: (1) modem chips that comply with CDMA standards (“CDMA modem

chips”); and (2) modem chips for use in premium tier handsets, which comply with advanced LTE standards (“premium-LTE modem chips”).

At some point in the early 1990s, Qualcomm started licensing to only original equipment manufacturers at a 5% running royalty on the price of each handset sold. [FTC v. Qualcomm](#), No. 17-CV-00220-LHK, 2019 WL 2206013, at *4. These licenses are called Subscriber Unit License Agreements (“SULAs”) and with a SULA, an original equipment manufacturer may sell handsets that practice Qualcomm's patents without fear of an infringement suit from Qualcomm. *Id.* Qualcomm SULAs grant rights both to the relevant Qualcomm patents existing at the time of the SULA and additional relevant Qualcomm patents issued during the license term. *Id.* Qualcomm SULAs also require original equipment manufacturers to cross-license their own SEP patents to Qualcomm, sometimes on a royalty-free basis. *Id.*

In the *FTC v. Qualcomm* case, the Court described Qualcomm’s anticompetitive conduct as follows:

In a practice that Qualcomm concedes is unique within Qualcomm and unique in the industry, Qualcomm refuses to sell modem chips to an original equipment manufacturer until the original equipment manufacturer signs a separate patent license agreement. Thus, Qualcomm refuses to sell an original equipment manufacturer modem chips exhaustively. Under the doctrine of patent exhaustion, “the initial authorized sale of a patented item terminates all patent rights to that item.” [Quanta Comp., Inc. v. LG Elecs., Inc.](#), 553 U.S. 617, 625 (2008). Thus, patent exhaustion provides that when a consumer purchases a television, the consumer does not have to separately sign a license and pay royalties for any patents practiced by the television.

To avoid exhaustion and to enforce Qualcomm's practice of requiring a separate patent license before selling modem chips, Qualcomm wields its chip monopoly power to coerce original equipment manufacturers to sign patent license agreements.

[FTC](#), No. 17-CV-00220-LHK, 2019 WL 2206013, at *26.

D. The Parties' Arguments

The defendants argue they have a license to use the technology in their allegedly infringing phones by virtue of an agreement that Qualcomm, their supplier of chipsets, and LGE, the original assignee of '373 Patent, entered into in 1993, and amended several times thereafter. They contend that in the agreement, as amended, LGE agreed not to assert its patents against Qualcomm's customers, including the defendants. They argue that Evolved purchased the patents at issue from LGE subject to the encumbrance. They also argue that Evolved's patent infringement action is barred under the doctrine of patent exhaustion. They contend that the patent rights in the '373 patent have been exhausted by Qualcomm's sale of its baseband chipsets to the defendants for use in the accused devices.

Evolved argues that the technology covered under the Qualcomm-LGE license is limited to that which is necessary for a specific group of defined wireless communications. It contends that the Qualcomm-LGE licensing contracts are narrowly drawn to CDMA-only units. The plaintiff points to "nested definitions" of "LICENSEE's Technically Necessary IPR," "Commercially Necessary IPR," "Subscriber Units" and "Complete CDMA Telephone," all relating back to the definition of a terminal that can be used to initiate and/or receive "any CDMA-based wireless wide area standard communications." [D.I. 347](#), Evolved Brief at 12. It contends the covenants encompassed in the licensing agreements encumber only technology that is technically and commercially necessary in a CDMA-only phone. It states the 2007 Agreements ([D.I. 227](#), Jay Decl., Ex. F, 2007 Amendment to Infrastructure and Subscriber Unit License and Technical assistance Agreement, & Ex. G, 2007 Amendment), in which LGE covenanted to Qualcomm that it

would not assert its OFDM Intellectual property against Qualcomm and its customers, do not apply to the defendants' accused products. *Id.* at 14.

In response to Evolved's argument, the defendants concede to the ordinary meaning of "necessary," but argue that the focus in interpreting the contracts should be on the word "multi-mode." The defendants contend that multi-mode devices are at issue. They argue the licenses cover the '373 Patent which is a SEP and is both commercially and technically necessary to a multi-mode device.

II. FACTS

Evolved initially asserted infringement of five patents that are part of a portfolio of patents that it acquired from a related entity, TQ Lambda, in September 2014. TQ Lambda had purchased the patents from LGE. *D.I. 227*, Jay Decl., Ex. J, PPA. Evolved owns the patents-in-suit by assignment from LGE. *D.I. 1*, Complaint at ¶ 15. TQ Lambda purchased the patents-in-suit from LGE in January 2014, and sold them to Evolved in September 2014. *Id.* The application for the '373 patent was filed on October 27, 2006, and the inventors of the '373 Patent assigned the entire right, title and interest in the '373 patent to LGE on November 2, 2006. *D.I. 1*, Complaint. LGE declared the '373 patent essential to the LTE standard. *Id.* at 16.

Evolved alleges LGE is a member of ETSI and participated extensively in the 3GPP Working Group meetings to develop the LTE standards (*Id.* at 15). It alleges the patents-in-suit are essential to the 3GPP 36 Series technical specifications, which cover the LTE standards. *Id.* Ultimately the parties stipulated to dismissal of these three patents, leaving only two patents-in-suit: the '373 Patent and '236 Patent.⁹

⁹ The Federal Circuit recently affirmed (under Federal Circuit Rule 36) the Patent Trial and Appeal Board's Final Written Decision invalidating claims 1-10, 12, and 13 of *U.S. Patent No. 7,881,236 B2* (*D.I.*

Evolved accuses the defendants of infringing the '373 Patent in connection with numerous of the defendant's products that are compatible with LTE networks. [D.I. 1](#), Complaint at 22. The accused products and/or methods are allegedly covered by one or more claims of the '373 Patent, including but not limited to cellular telephones, tablet computers, and/or other devices with LTE capabilities and that comply with the LTE standards, including at least TS ("Technical Specification") 36.211, .300, .321, .331, and .423. *Id.* With the exceptions of certain of Samsung's and Motorola's accused products, all of the accused products contain Qualcomm baseband chipsets. [D.I. 225](#), Defendants' Brief at 9 n. 4. The defendants limit their motions for summary judgment to those accused products that contain Qualcomm chipsets. *Id.*¹⁰

A. Licensing Agreement and Amendments

On August 31, 1993, Qualcomm entered an Infrastructure and Subscriber Unit License and Technical Assistance Agreement ("1993 SULA Agreement") with Goldstar Information & Communications Ltd., the corporate predecessor of LG Electronics ("LGE"). [D.I. 227](#), Ex. A, 1993 SULA Agreement. The 1993 SULA Agreement was amended in 1996, 1998, 2004, 2007, and 2010. [D.I. 227](#), Exs. B to I. The 1993 SULA Agreement provides that it is governed by California law. [D.I. 227](#), Jay Decl., Ex. A 1993 SULA Agreement at 28. The 1993 SULA Agreement contains the following recitals concerning Intellectual Property rights ("IPR") licensing:

WHEREAS, QUALCOMM has developed certain proprietary CDMA technology which may be useful in providing greater capacity and improved quality and reliability compared to other cellular telephone technologies;

[480-1](#), Ex. A, *Evolved Wireless, LLC v. ZTE (USA) Inc., et al.*, Nos. 2018-2008, 2018-2009, 2018-2010, 2018-2011 (Fed. Cir. October 4, 2019)).

¹⁰ At the hearing, defendants' counsel stated that there is no dispute that he thought "every phone involved in this case is a multi-mode phone." [D.I. 481](#), Tr. at 64.

WHEREAS, LICENSEE has been selected by the Electronics and Telecommunications Research Institute ("ETRI") of Korea to obtain a license from QUALCOMM to make and sell Subscriber Units and Infrastructure Equipment;

WHEREAS, LICENSEE desires to obtain from QUALCOMM a license to use QUALCOMM's Intellectual Property (as defined below) and technical assistance necessary for the manufacture and sell Subscriber Units and Infrastructure Equipment (as defined below) and QUALCOMM desires to provide LICENSEE with such license and technical assistance in exchange for the license fees, royalties and other provisions hereof, each in accordance with the terms and conditions set forth in this Agreement; and

WHEREAS, QUALCOMM desires to obtain a license of LICENSEE's Intellectual Property (as defined below) to manufacture and sell Subscriber Units and Infrastructure Equipment and LICENSEE desires to grant such license in accordance with the terms and conditions set forth in this Agreement.

D.I. 227, Ex. A at 1. LGE granted Qualcomm limited covenants with respect to its intellectual property—the agreement covered the “LICENSEE’s Intellectual Property” meaning “both LICENSEE’s Technically Necessary IPR and LICENSEE’s Commercially Necessary IPR.” *Id.* at 4. “Technically necessary IPR” was defined as:

LICENSEE’s (and its Affiliate’s) patents and patent applications (including divisions, reissues, renewals, continuations and continuations-in-part), copyrights, other intellectual property rights, trade secrets, know-how and technical information, including but not limited to that intellectual property that is incorporated into the common air interface, which LICENSEE (or its Affiliate) has acquired or developed and is in possession of as of the Effective Date, which LICENSEE (or its Affiliate) [sic] the right to license to QUALCOMM in accordance with this Agreement, which are technically necessary to use, make and/or sell *Subscriber Units*, Cordless Base Stations and/or Infrastructure Equipment (excluding equipment in the mobile telephone switching office), *and any Improvements to any of such Technically Necessary IPR developed or acquired during the Improvement Period*; but the term LICENSEE’s Technically Necessary IPR does not include any trade name, trademark, service mark or similar symbols, abbreviations, contractions or simulations identifying LICENSEE.

Ex. A, 1993 SULA Agreement at 5 (emphasis added). The agreement defined “LICENSEE’s commercially necessary IPR” as follows:

“LICENSEE’s Commercially Necessary IPR” means the following intellectual property of LICENSEE:

LICENSEE’s (and its Affiliate’s) patents and patent applications (including divisions, reissues, renewals, continuations and continuations-in-part), copyrights, other intellectual property rights, trade secrets, know-how and technical information which LICENSEE (or its Affiliate) has acquired or developed and is in possession of as of the Effective Date, which LICENSEE (or its Affiliate) has the right to license to QUALCOMM in accordance with this Agreement, and which are commercially necessary to use, make and/or sell *Subscriber Units*, Cordless Base Stations, Channel Units and/or CDMA Enabling Infrastructure Equipment, *and any Improvements to any of such Commercially Necessary IPR which is developed or acquired during the Improvement Period*; but the term LICENSEE’s Commercially Necessary IPR does not include any trade name, trademark, service mark or similar symbols, abbreviations, contractions or simulations identifying LICENSEE.

D.I. 227, Ex. A, 1993 SULA Agreement at 4-5 (emphasis added). “QUALCOMM Intellectual Property” was defined in similar terms. *Id.* at 6.

The 1993 SULA Agreement also provides that

"Improvements" means (i) any QUALCOMM Intellectual Property (as to QUALCOMM) and any LICENSEE Intellectual Property (as to LICENSEE), not existing on the Effective Date of this Agreement, which is acquired or developed by a Party during the Improvement Period and (ii) any improvements, modifications or changes to QUALCOMM's Intellectual Property (as to QUALCOMM) or LICENSEE's Intellectual Property (as to LICENSEE) which are acquired or developed by either Party during the Improvement Period; all of which the acquiring or developing Party has the right to license to the other Party hereunder.

Id. at 5. LGE and Qualcomm also agreed to promptly disclose to each other “any patents which are issued during the Improvement Period and which fall within the intellectual property being licensed hereunder.” *Id.* at 20.

“Subscriber Unit” had been defined in the 1993 SULA Agreement as a “complete CDMA and/ or Dual Mode CDMA telephone, including but not limited to mobile, transportable and portable telephones, which incorporates all or any part of QUALCOMM

Intellectual Property and can be used, without any additional equipment or components being attached thereto, to initiate and receive Wireless telecommunications transmissions.” *Id.* at 7. “Subscriber Unit” was amended in 2004 to mean “a Complete CDMA Telephone or a CDMA Modem Card, *and any subsequent generation products.*” D.I. 227, Ex. E, 2004 Amendment to Infrastructure and Subscriber Unit License and Technical Assistance Agreement (“2004 Amendment”) at 3 (emphasis added).

The 2004 Amendment recited the following:

WHEREAS, pursuant to the License Agreement, QUALCOMM granted LICENSEE, among other things, a license under certain of QUALCOMM's and its Affiliates' patents to make (and have made), use and sell single-mode CDMA Subscriber Units *and multimode CDMA Subscriber Units* (e.g., multi-mode CDMA/GSM Subscriber Units) for CDMA-based wireless applications, including wireless applications based on the families of CDMA standards commonly referred to as IS-95, c dma2000 (e.g., the cdma2000 family that includes lx-RTT, lx-EV-DO, 1x-EV-DV), and WCDMA (or UMTS) *as well as future evolutions of such standards.* For purposes of clarification, the families of CDMA standards commonly referred to as IS-95, cdrna2000 (e.g., the cdma2000 family that includes lx-RTT, lx-EV-DO, lx-EV-DV), and WCDMA (or UMTS) as well as future evolutions of such standards do not include TD-SCDMA and future evolutions of TDSCDMA;

Id. at 1 (emphasis added). In the 2004 Amendment, LGE covenants not to assert any claims for patent infringement against Qualcomm, its affiliates, or its customers where the alleged basis for infringement was incorporation of Qualcomm Components and associated software in their products. *Id.* at 8. Notably, the definitions of Subscriber Unit and Wireless do not limit the “Covenant Products” to devices that are *only* CDMA or WCDMA-based devices. *Id.*

In 2007, Qualcomm and LGE executed a separate agreement related to OFDM technology. D.I. 227, Jay Decl. Ex. G, Agreement (“2007 OFDM Agreement”). That agreement complements but does not overlap with the 1993 SULA—the 1993 Agreement

broadly covers “Subscriber Units” that include CDMA technology, whereas the 2007 Agreement covers “OFDM Subscriber Units” that include LTE technology *but do not include* CDMA technology. *Id.* at 2, 6-7 (emphasis added). It is undisputed that the covenants within the 2007 OFDM Agreement do not apply to the defendants’ accused products. [D.I. 347](#), Evolved Brief at 14; [D.I. 481](#), Tr. at 62-63¹¹.

At the same time, the parties amended the 1993 SULA and added definitions related to the OFDM technology. [D.I. 227](#), Jay Decl., Ex. F, 2007 Amendment to Infrastructure and Subscriber Unit License and Technical Assistance Agreement (“2007 Amendment”) at 1-5. In the 2007 Amendment, LGE again covenants not to assert its IPR against any Qualcomm customer. *Id.* at 14-17, § 5.2. The covenants are royalty-free (*Id.* at 17). The covenant not to assert any infringement claims against Qualcomm customers relates back to the scope of the license provided in Sections 6.1.1 and 6.1.2 of the 1993 License Agreement. *Id.* at 14-15. The 2007 Amendment provides that the covenant to “‘LICENSEE’s Limited Intellectual Property’ and its Affiliates’ Intellectual Property shall not include any intellectual property rights acquired or developed after December 31, 2006 by LICENSEE or its Affiliates.” *Id.* at 17. The ’373 patent application was filed on October 27, 2006, and the inventors of the ’373 Patent assigned the entire right, title and interest in the ’373 patent to LGE on November 2, 2006. [D.I. 1 at 10](#); [D.I. 1-3](#), ‘373 Patent.

The term “Complete CDMA Telephone” was again amended in 2010 as follows:

The definition of “Complete CDMA Telephone” in the July 2004 Amendment is hereby deleted in its entirety and replaced with the following:

¹¹ At oral argument on the motions, defendants’ counsel stated that the 2007 agreement was very different because it was a single mode agreement that was directed to LTE and only LTE. [D.I. 481](#), Tr. at 62. He believed the 2007 Agreement was for non-phone applications. *Id.* at 63. He stated he knew of no phones that used only LTE and that typically every phone is backwards compatible with previous standards. *Id.*

“Complete CDMA Telephone” means any complete CDMA (*including multi-mode*) terminal, including but not limited to a fixed, mobile, transportable or portable telephone or data terminal, which (i) incorporates all or any part of the QUALCOMM Intellectual Property and (ii) can be used, without any additional equipment or components being attached thereto, to initiate and/or receive *Wireless* communications. The term “Complete CDMA Telephone” shall not mean a CDMA Modem Card and for the avoidance of doubt, a Complete CDMA Telephone into which a CDMA Modem Card is embedded is a Complete CDMA Telephone, and not a CDMA Modem Card.

(D.I. 227, Ex. I, 2010 Amendment to Infrastructure and Subscriber Unit License and Technical Assistance Agreement (“2010 SULA Amendment”) at 2 (emphasis added)) The 2007 Agreement was amended in 2010 separately from the Amendment to the 1993 SULA Agreement. D.I. 227, Jay Decl., Ex. H, Amendment to 2007 Agreement.

“Wireless” and “Wireless Applications” had been defined in the 1993 SULA Agreement as: “[O]nly CDMA-based Digital Cellular Systems, Personal Communications Systems, Wireless PABX Systems, commercial telemetry for information gathering, commercial security systems for alarming applications, RF LAN applications, Cordless Telephone applications and any other CDMA wireless applications.” *Id.*, Ex. A at 8. The terms “Wireless” and “Wireless applications” were addressed in the 2010 SULA Amendment as follows:

The definition of “Wireless” and/or “Wireless Applications” in the License Agreement is hereby clarified as follows: “Wireless” and “Wireless Applications” includes, without limitation, (i) any CDMA-based wireless wide area standard, including the CDMA2000 family of standards (e.g., 1xRTT, 1x-EVDO, 1x-EVDO Rev. A, 1x-EVDO Rev. B, BCMCS), the WCDMA family of standards (e.g., UMTS, HSPA, HSPA+, HSDPA, HSUPA, MBMS, TD-CDMA) and TD-SCDMA; and (ii) *any updates or revisions to any of the foregoing*.

Id., Ex. I, 2010 Amendment at 5. The “Covenant Products” under the 1993 SULA, as amended in 2004, 2007, and 2010 include multimode terminals without limitation as long as they are at least capable of CDMA or WCDMA-based communications. *Id.*, Ex. E,

2004 Amendment at 3; Ex. F, 2007 Amendment at 17; Ex. I at 2, 5. Being capable of LTE- or OFDM-based communications, in addition to CDMA-based communications, is not excluded. *Id.*

Also, the 2010 SULA Amendment changed the definition of “Improvement Period,” which had been defined in the 1993 SULA Agreement as “the period commencing immediately after the Effective Date of this Agreement and ending July 26, 1995.” *Id.*, Ex. A, 1993 SULA Agreement at 5. In the 2010 Agreement, the definition of “Improvement Period” was modified to mean “the period commencing immediately after August 31, 1993 and ending on December 31, 2010.” *D.I. 227*, Ex. I, 2010 Amendment at 5. The ’373 Patent issued on October 5, 2010, and thus falls within the coverage of the 2010 Amendment.

The defendants have also shown that the accused products that incorporate Qualcomm baseband chipsets are capable of communication on LTE cellular wireless carrier networks and are also capable of communication on wireless networks incorporating CDMA or WCDMA technologies, e.g., Ix-EVDO Rev. A, Ix-EVDO Rev. B, UMTS, HSPA, HSPA+, and HSDPA. *D.I. 229*, Appendix B.

B. LGE-TQ Lambda Patent Purchase Agreement

LGE agreed to sell “all right, title, and interest in [certain patents including the ’373 Patent] and applications and the causes of action to sue for infringement thereof and other enforcement rights” to TQ Lambda on January 24, 2014. *D.I. 227*, Ex. J, PPA at 1. TQ Lambda agreed to purchase from LGE “all right, title, and interest in the Assigned Patent Rights, free and clear of any restrictions, liens, claims, and encumbrances except as set forth in *Exhibit B.*” *Id.* (emphasis in original). [REDACTED]

CONFIDENTIAL MATERIAL HAS BEEN REDACTED

[REDACTED]

[REDACTED] Also attached to the PPA is Exhibit C, an “ETSI Declaration by LG Electronics.” *Id.*, Ex. C. With respect to the '373 Patent, under the heading “Essential to projects” are listed the following

3GPP-Release-8 (GSM Phase 2+ and UMTS/LTE release 8) LTE (Rel-8
LTE - 3G Long Term Evolution - Evolved Packet System RAN part)

Id. Under the heading, “Essential to standards YES to ETSI FRAND license,” in Ex. C, are listed the following: TS 36.300, TS 36.321, TS 36.331, and TS 36.423. *Id.*¹²

[REDACTED]

[REDACTED] *Id.* at 3. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

¹² These are the ETSI technical specifications that are referred to in Evolved's complaint. *D.I. 1*, Complaint at 22.

CONFIDENTIAL MATERIAL HAS BEEN REDACTED

[REDACTED]

[REDACTED]

Under the heading “Existing Licenses and Obligations,” the seller warrants that that “none of the Assigned Patent Rights have been declared essential to any standard of any standard setting organization, except the Patents may have been declared essential to the standard setting organization ETSI as set forth in *Exhibit C*,” but also states that “excluding those indicated in ***Exhibit A***, “none of the Patents have been evaluated or submitted for review related to a determination that such Patents are essential for practicing a standard related to cellular telecommunications. Further, none of the Patents have been determined to be non-essential for practicing a standard related to cellular telecommunications.” *Id.* at 9, § 6.3. The patents acquired by TQ Lambda are listed in Exhibit A, and the '373 Patent is noted as “submitted for evaluation.” *Id.*, Ex. A.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

The parties entered into the Agreement acknowledging that “in negotiating the Payment, the Seller and Purchaser have expressly taken into account the substantial uncertainty in the relevant markets as they currently exist and the substantial uncertainty regarding factors likely to impact use of the patented technology in coming years.” [D.I. 227](#), Jay Decl., Ex. J, PPA at 6, § 3.4.1(d).

III. Law

A. Summary Judgment Standards

Summary judgment is appropriate when, viewing the facts and inferences in the light most favorable to the nonmoving party, the “materials in the record, including depositions, documents, electronically stored information, affidavits or declarations, stipulations (including those made for purposes of the motion only), admissions, interrogatory answers, or other materials . . . show[] that the materials cited do not establish the absence or presence of a genuine dispute, or that an adverse party cannot produce admissible evidence to support the fact.” [Fed. R. Civ. P. 56\(c\)](#). The plain language of Rule 56(c) mandates the entry of summary judgment, after adequate time for discovery and upon motion, against a party who fails to make a showing sufficient to establish the existence of an element essential to that party’s case, and on which that party will bear the burden of proof at trial. [Celotex Corp. v. Catrett](#), 477 U.S. 317, 322 (1986). “The inquiry performed is the threshold inquiry of determining whether there is the need for a trial—whether, in other words, there are any genuine factual issues that properly can be resolved only by a finder of fact because they may reasonably be resolved in favor of either party.” [Anderson v. Liberty Lobby, Inc.](#), 477 U.S. 242, 250 (1986). If

“reasonable minds could differ as to the import of the evidence,” summary judgment should not be granted. *Id.* at 251.

The evidence must be viewed in the light most favorable to the nonmoving party, giving the nonmoving party the benefit of all reasonable inferences. *Kenney v. Swift Transp., Inc.*, 347 F.3d 1041, 1044 (8th Cir. 2003). “In ruling on a motion for summary judgment, a court must not weigh evidence or make credibility determinations.” *Id.* “Where the unresolved issues are primarily legal rather than factual, summary judgment is particularly appropriate.” *Koehn v. Indian Hills Cmty. Coll.*, 371 F.3d 394, 396 (8th Cir. 2004).

B. Patent Exhaustion

“The Patent Act grants patentees the ‘right to exclude others from making, using, offering for sale, or selling [their] invention[s].’” *Impression Prods., Inc. v. Lexmark Int’l, Inc.*, 137 S. Ct. 1523, 1531 (2017) (quoting 35 U.S.C. § 154(a)). The doctrine of patent exhaustion imposes a limit on that right to exclude. *Id.* “The limit functions automatically: When a patentee chooses to sell an item, that product ‘is no longer within the limits of the monopoly’ and instead becomes the ‘private, individual property’ of the purchaser, with the rights and benefits that come along with ownership.” *Id.*, (quoting *Bloomer v. McQuewan*, 14 How. 539, 549-50 (1853)). “A patentee is free to set the price and negotiate contracts with purchasers, but may not, ‘by virtue of his patent, control the use or disposition’ of the product after ownership passes to the purchaser.” *Id.* (quoting *United States v. Unis Lens Co.*, 316 U.S. 241, 250 (1942) (emphasis added by Supreme Court)). “The sale ‘terminates all patent rights to that item.’” *Quanta Computer, Inc. v. LG Elecs., Inc.*, 553 U.S. 617, 625 (2008). “Patent exhaustion is an affirmative defense to a claim of

patent infringement.” *Keurig, Inc. v. Sturm Foods, Inc.*, 732 F.3d 1370, 1373 (Fed. Cir. 2013).

A covenant not to sue for patent infringement is equivalent to a patent license. See *TransCore, LP v. Elec. Transaction Consultants Corp.*, 563 F.3d 1271, 1275, 1276 (Fed. Cir. 2009) (stating “The real question, then, is not whether an agreement is framed in terms of a ‘covenant not to sue’ or a ‘license.’ That difference is only one of form, not substance—both are properly viewed as ‘authorizations.’”); see also *De Forest Radio Tel. & Tel. Co. v. United States*, 273 U.S. 236, 242 (1927) (“As a license passes no interest in the monopoly, it has been described as a mere waiver of the right to sue by the patentee”). “[P]atent license agreements can be written to convey different scopes of promises not to sue, e.g., a promise not to sue under a specific patent or, more broadly, a promise not to sue under any patent the licensor now has or may acquire in the future.” *De Forest Radio*, 273 U.S. at 242.

“Under California law, the interpretation of a contract is a question of law” that “is governed by the objective intent of the parties as embodied in the words of the contract.” *Semitool, Inc. v. Dynamic Micro Sys.*, 444 F.3d 1337, 1341 (Fed. Cir. 2006) (citation omitted). California law prohibits the admission of parol evidence: (i) to insert an additional term into a written contract, if the contract is a complete and exclusive statement of the terms of the agreement, and/or (ii) to influence the meaning of contract terms where no ambiguity exists. *TransCore*, 563 F.3d at 1277; see also *Cal. Civ. Proc. Code* § 1856(b), (d), and (g); *Pac. Gas & Elec. Co. v. G.W. Thomas Drayage & Rigging Co.*, 442 P.2d 641, 644–45 (Cal. 1968). The district court may receive and consider extrinsic evidence to determine whether one or more terms of a contract is reasonably

susceptible to multiple meanings, but once the district court determines that no ambiguity exists, extrinsic evidence is properly not admitted. *TransCore*, 563 F.3d at 1277 n.2; see *Dore v. Arnold Worldwide, Inc.*, 139 P.3d 56, 60 (Cal. 2006); *Pac. Gas & Elec.*, 442 P.2d at 644–45.

IV. DISCUSSION

The Court agrees with the defendants that the plaintiff's action is barred under the doctrine of patent exhaustion. The defendants' sales of the allegedly infringing products (containing the Qualcomm chipsets) are authorized under the 1993 SULA License Agreement, as amended. In the Agreements and Amendments, LGE cross-licensed its patents (including the '373 patent) to Qualcomm and Qualcomm's downstream customers (including the defendant original equipment manufacturers) in exchange for the right to use Qualcomm's chipsets and to practice Qualcomm's patents. Whether Qualcomm's and/or LGE's licensing and/or business practices are otherwise illegal, unfair, anticompetitive, or oppressive is not a question for this Court.

The Court agrees with the defendants that the 1993 SULA Agreement, as amended in particular by the 2010 agreement, reflects changes in cell phone technology over time. The technology at the inception of the SULA Agreement was CDMA technology and involved CDMA SEPs. Qualcomm continually amended the Agreement to reflect the changes in technology and commercial circumstances. The 2010 Amendments' addition of the term "multi-mode" to the definition of "subscriber units" reflects the intent to cover evolving technology. The 2007 Agreement is limited to OFDM single-mode products. With respect to multi-mode products, the 1993 SULA Agreement and its various permutations continued to apply until Evolved's predecessor bought the

subject patent in 2014. It is clear to the court that Evolved bought the '373 Patent subject to the Qualcomm-LGE SULA Agreement, first executed in 1993 and amended several times thereafter. The 2007 Amendment, as distinct from the 2007 Agreement, amended the 1993 Agreement and, although it added references to OFDM technology, did not limit or exclude CDMA technology from its coverage. The 2010 Amendment to the 1993 SULA Agreement defines the covered products and amended the original coverage of CDMA single-mode phones to include multi-mode phones.

The Court finds the 1993 SULA Agreement, as amended, covers the defendants' multimode, Qualcomm-based products. In the amendments to the 1993 SULA Agreement, LGE provided covenants not to assert certain patents, including the '373 patent, against Qualcomm and Qualcomm's customers. Evolved inherited LGE's covenants through purchase of the '373 patent and is therefore precluded from asserting claims for infringement of the '373 patent against products that incorporate Qualcomm baseband chipsets, including many of the defendants' accused products.

The Court finds that Evolved advocates an unreasonably narrow interpretation of the Qualcomm-LGE SULA Agreement. Its position that the definition of "licensee's Intellectual Property" is limited to only those patents related to CDMA technology, and excludes non-CDMA-based technologies like LTE, is unsupported. Under the plain language of the 1993 SULA Agreement and subsequent amendments, especially the 2010 revision of the term "subscriber units" to cover multi-mode devices, the parties contemplated covering the universe of evolving technology that incorporated Qualcomm chipsets. LGE's cross-license/covenant not to sue precludes an infringement action by Evolved against Qualcomm customers. Even in the absence of such a provision, the

covenant not to sue Qualcomm itself gives rise to patent exhaustion that bars Evolved's claims against the defendants.

The record shows the asserted patent is both technically and commercially necessary IPR to use, make, or sell "subscriber units." The "subscriber units," as amended, are cell phones, not certain components or functions of a cell phone. The license agreement extends to intellectual property that is technically necessary to the subscriber unit as a whole. LGE declared the '373 Patent to be a standard essential patent. Evolved alleges in its Complaint that the defendants' various mobile devices infringe patents that have been declared essential to the LTE wireless communications standards. Evolved's infringement allegations are directed to the functionality that the Qualcomm chipsets provide.

Because phones containing patents essential to the LTE technology must work on older networks that employ 2G and 3G technology, the '373 Patent is also commercially necessary. Logically, it would be difficult to market a cellphone that would not work where 4G was unavailable. The Court rejects the plaintiff's analogy comparing the functionality of the '373 Patent to a CD player in a car—"a great feature . . . but not necessary to make an automobile." [D.I. 481](#), Tr. at 31. The Court finds SEPs are more analogous to first gear and fifth gear in a transmission since the difference between 3G and 4G is speed. A car that ran only in first gear would not be commercially viable. It is clear to the Court that the evolving technology builds on earlier standards.

A review of the Agreements and Amendments, as redacted, shows the licensing agreements were meant to grow and evolve with the technology. The LGE cross-license to Qualcomm authorized Qualcomm to sell components including LGE SEP patents, the

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periodic renewals of the agreements contemplate coverage of OFDM technology, and even the name assigned to 4G—LTE meaning long-term evolution—refers to licensing of evolving standards. The licensing of OFDM only technology is covered in a separate agreement not applicable to the accused products. There are numerous references in the SULA Agreement itself, and in its amendments, to coverage of “subsequent generation products,” “updates or revisions,” “any improvements to any of such [technically or] Commercially Necessary IPR which is developed or acquired during the Improvement Period” and “future evolutions of such standards.”

Evolved knew by virtue of the exhibits attached to the PPA that the '373 Patent had been declared an ETSI SEP. [REDACTED]

[REDACTED]

[REDACTED] The PPA explicitly stated that there had been no determination as to the validity, infringement, or actual essentiality of the purchased IPR.

This interpretation comports with what appear to be Qualcomm's licensing and marketing strategy, whereby it attempted to maintain its monopoly in both the CDMA and premium LTE chip markets and to impose an anticompetitive surcharge on its competitors' chips. Although the anticompetitive conduct is not before the Court, Qualcomm's background business practices support the Court's interpretation of the Agreements at issue.

Accordingly, the Court finds the defendants are entitled to prevail on their licensing/covenant defense. Evolved's claims against the defendants for infringement of the '373 Patent are barred by the licensing agreements executed by Qualcomm and LGE.

The record shows that in order to acquire Qualcomm's chipsets, LGE was required to relinquish any claims it may have had against Qualcomm and its customers. All of the defendants are Qualcomm customers.

Unfortunately for Evolved, it purchased the LGE intellectual property subject to the Qualcomm encumbrance. It has not shown that the intellectual property that it purchased from LGE falls outside the purview of technology that is commercially and technically necessary to make use or sell the accused products. LGE's covenant not to assert the '373 patent against Qualcomm and its customers extends to the Qualcomm baseband chipsets that are incorporated into the defendants' accused products. The fact that Qualcomm's licensing practices may have been anti-competitive does not affect the Court's interpretation of the contracts. The SULA contracts were designed to, and did, create a situation that was advantageous to Qualcomm to the detriment of other SEP patent holders.

Also, the doctrine of patent exhaustion bars the plaintiff's infringement claims. As a matter of patent law, "the authorized sale of an article that substantially embodies a patent exhausts the patent holder's rights and prevents the patent holder from invoking patent law to control postsale use of the article." *Quanta Computer, Inc. v. LG Elecs., Inc.*, 128 S. Ct. 2109, 2122 (2008). Qualcomm sold its chipsets to LGE, exhausting its patent rights and required LGE to cross-license its patents, without a royalty, in order to purchase the chipsets. Qualcomm and/or LGE may have used licensing restrictions to essentially claw back rights that patent exhaustion extinguished, but the fact remains that their patent rights were exhausted. Evolved acquired the IPR with the knowledge that the rights it purchased were on shaky ground.

In view of the foregoing, counterclaims for breach of contract are moot. Accordingly,

IT IS ORDERED that:

1. Defendant HTC's Motion for Summary Judgment ([D.I. 205](#) in 1:15cv543) is granted.
2. Defendants Lenovo Corp.'s and Motorola Mobility, LLC's motion for summary judgment ([D.I. 184](#) in 1:15cv544) is granted with respect to their accused products that contain Qualcomm-based chipsets.
3. Defendants Samsung Elecs. Co., Samsung Elecs. Am. Inc.'s Motion for summary judgment ([D.I. 224](#) in 1:15cv545) is granted with respect to their accused products that contain Qualcomm baseband chipsets.
4. Defendant ZTE (USA) Corp.'s motion for summary judgment ([D.I. 197](#) in 1:15cv546) is granted.
5. Defendant Microsoft Corp.'s motion for summary judgment ([D.I. 197](#) in 1:15cv547) is granted.
6. The parties' Stipulation to Stay Proceedings Pending Resolution of Appeals ([D.I. 432](#) in 1:15cv543; [D.I. 394](#) in 1:15cv544; [D.I. 477](#) in 1:15cv545; and [D.I. 397](#) in 1:15cv546; [D.I. 415](#) in 1:15cv547) is hereby adopted; to the extent any issues are not resolved in this order, these actions are stayed pending resolution of the appeal in *Evolved Wireless LLC v. Apple Inc.*, No. 1:15cv542.
7. The plaintiff's motions for summary judgment on the defendants' counterclaims for breach of contract ([D.I. 205](#) in 1:15cv543; [D.I. 184](#) in 1:15cv544; [D.I. 197](#) in 1:15cv546; and [D.I. 197](#) in 1:15cv547) are denied as moot.

8. A judgment of dismissal will be entered.

9. Given that the Court has relied upon material that technically remains under seal, the Court is releasing this Memorandum Order under seal, pending review by the parties. In the event that the parties believe that certain material in this Memorandum Order should be redacted, the parties should jointly submit a proposed redacted version within one week of the date of this Order. The Court will subsequently issue a publicly available version of its Memorandum Order.

DATED this 3rd day of December 2019.

BY THE COURT:

s/ Joseph F. Bataillon
Senior United States District Judge



US007809373B2

(12) **United States Patent**
Park et al.

(10) **Patent No.:** **US 7,809,373 B2**
(45) **Date of Patent:** **Oct. 5, 2010**

(54) **METHOD OF TRANSMITTING AND RECEIVING RADIO ACCESS INFORMATION IN A WIRELESS MOBILE COMMUNICATIONS SYSTEM**

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2001/0030956 A1 10/2001 Chillariga et al.
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(75) Inventors: **Sung Jun Park**, Gyeonggi-do (KR);
Young Dae Lee, Gyeonggi-do (KR);
Sung Duck Chun, Gyeonggi-do (KR);
Myung Cheul Jung, Seoul (KR)

(Continued)

(73) Assignee: **LG Electronics Inc.**, Seoul (KR)

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 324 days.

EP 1505782 2/2005

(21) Appl. No.: **11/553,939**

(Continued)

(22) Filed: **Oct. 27, 2006**

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(65) **Prior Publication Data**

US 2007/0047493 A1 Mar. 1, 2007

Related U.S. Application Data

(60) Provisional application No. 60/732,080, filed on Oct. 31, 2005.

Onoe et al., "Control Channel Structure for TDMA Mobile Radio Systems," 40th IEEE Vehicular Technology Conference, May 6-9, 1990, Orlando (US), pp. 270-275.

Primary Examiner—Vincent P Harper

Assistant Examiner—Mahendra Patel

(74) *Attorney, Agent, or Firm*—Lee, Hong, Degerman, Kang & Waimey

(30) **Foreign Application Priority Data**

Jul. 5, 2006 (KR) 10-2006-0063135

(57) **ABSTRACT**

(51) **Int. Cl.**
H04W 36/00 (2009.01)

(52) **U.S. Cl.** **455/436**; 370/338; 370/349; 455/552

(58) **Field of Classification Search** 455/552, 455/450, 452, 458, 435, 436, 509; 370/338, 370/349, 329, 328, 466, 469, 335
See application file for complete search history.

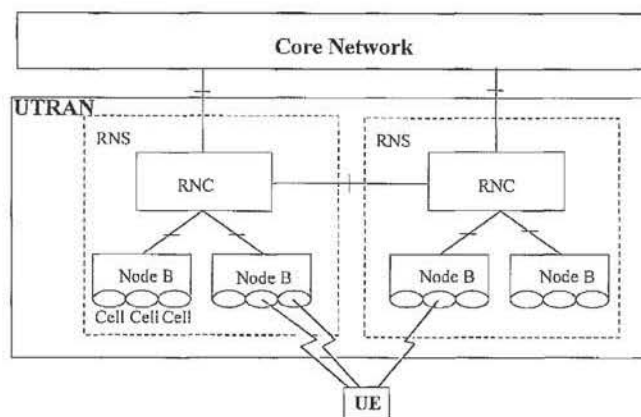
In a wireless mobile communications system, a method of transmitting and receiving radio access information that allows a faster and an efficient way of establishing a radio connection between a terminal and a target base station while performing a handover for the terminal to a cell of the target base station. The network transmits in advance, the radio access information and the like, to the terminal so that the terminal can be connected with the target cell in a faster manner which minimizes the total time for the handover process.

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26 Claims, 7 Drawing Sheets



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Fig 1

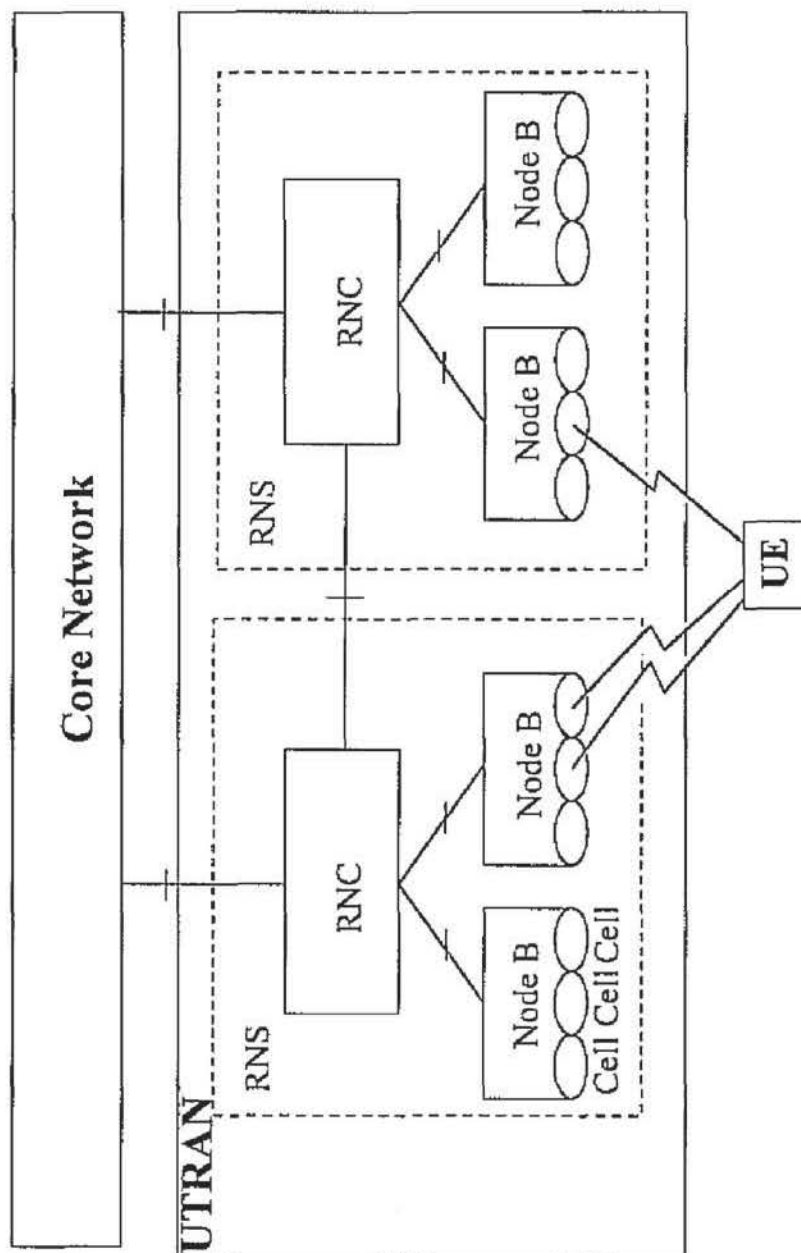


Fig 2

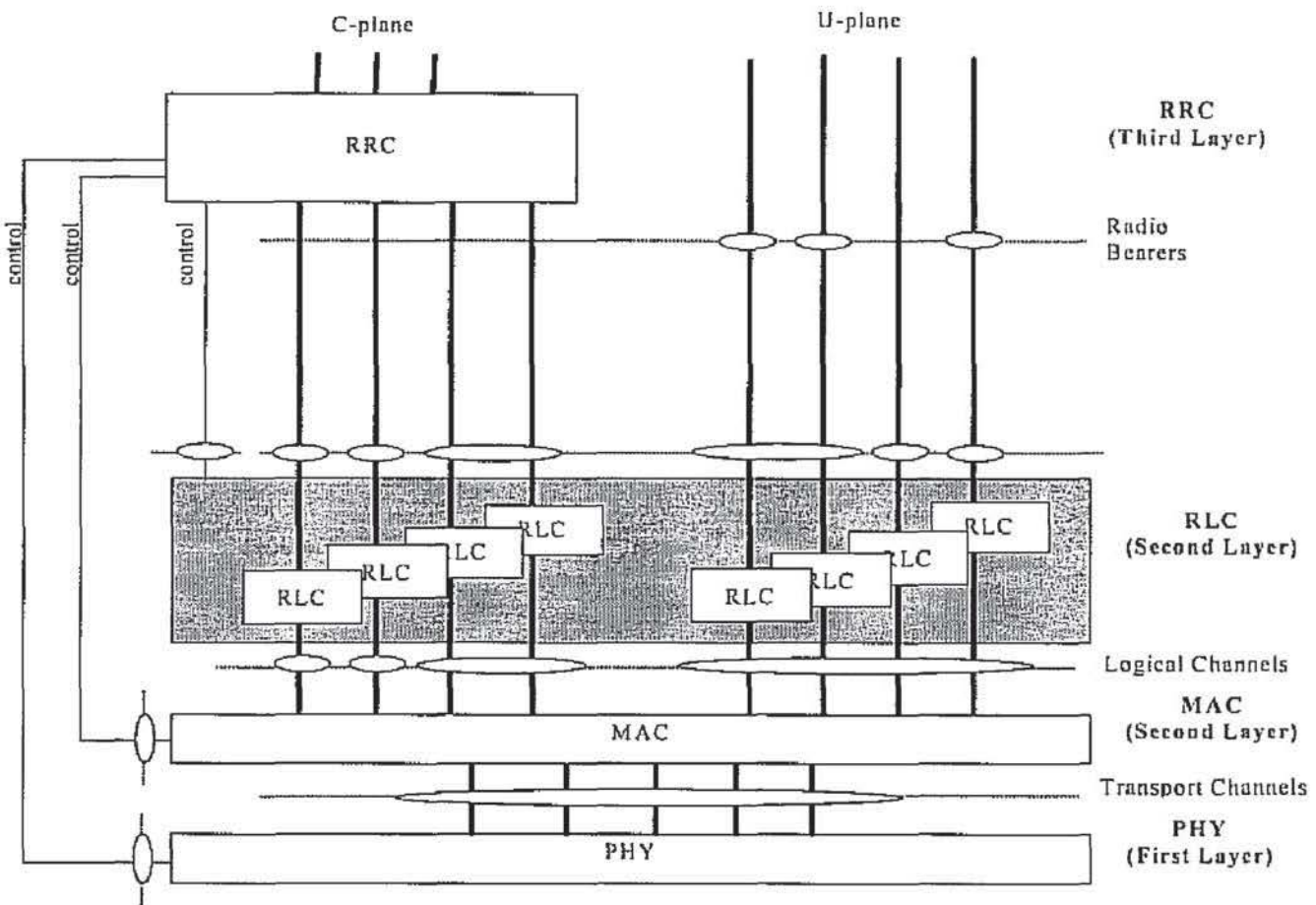


Fig 3

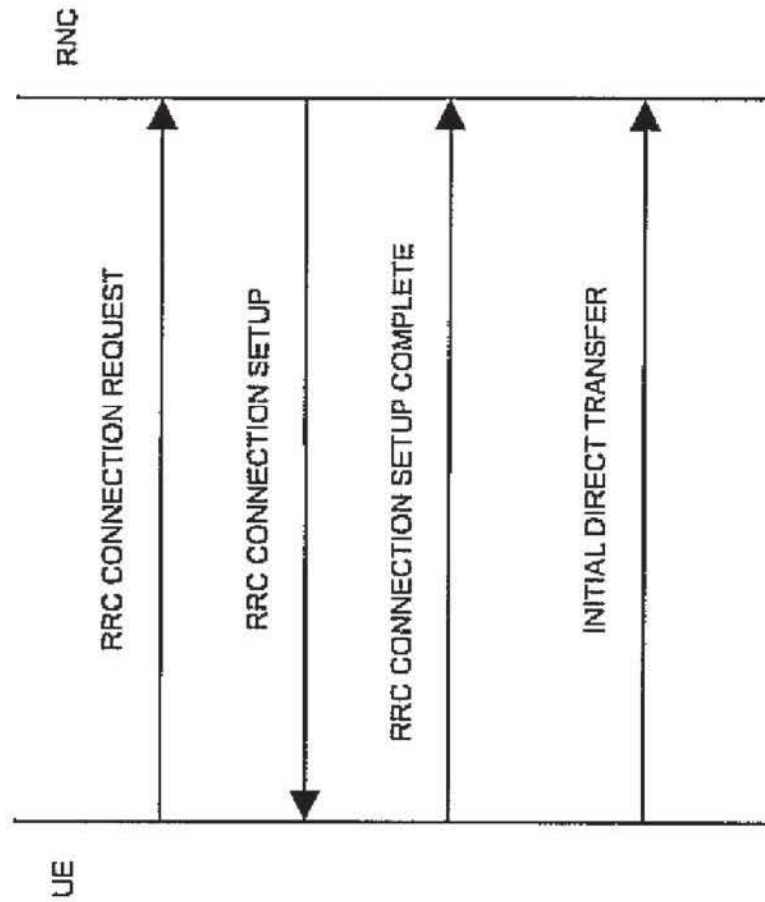


Fig 5

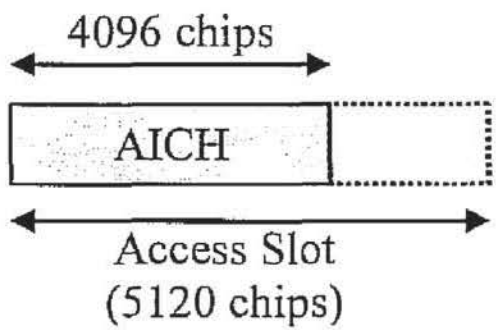


Fig 4

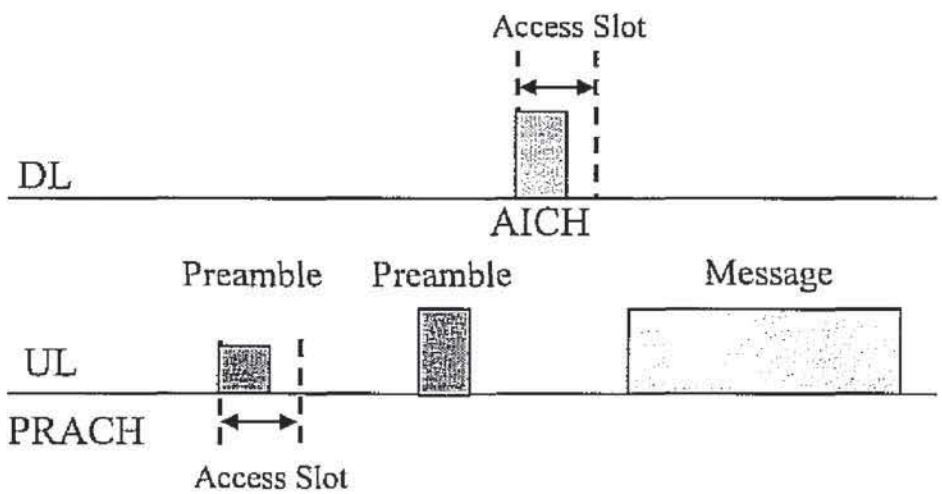


Fig 6

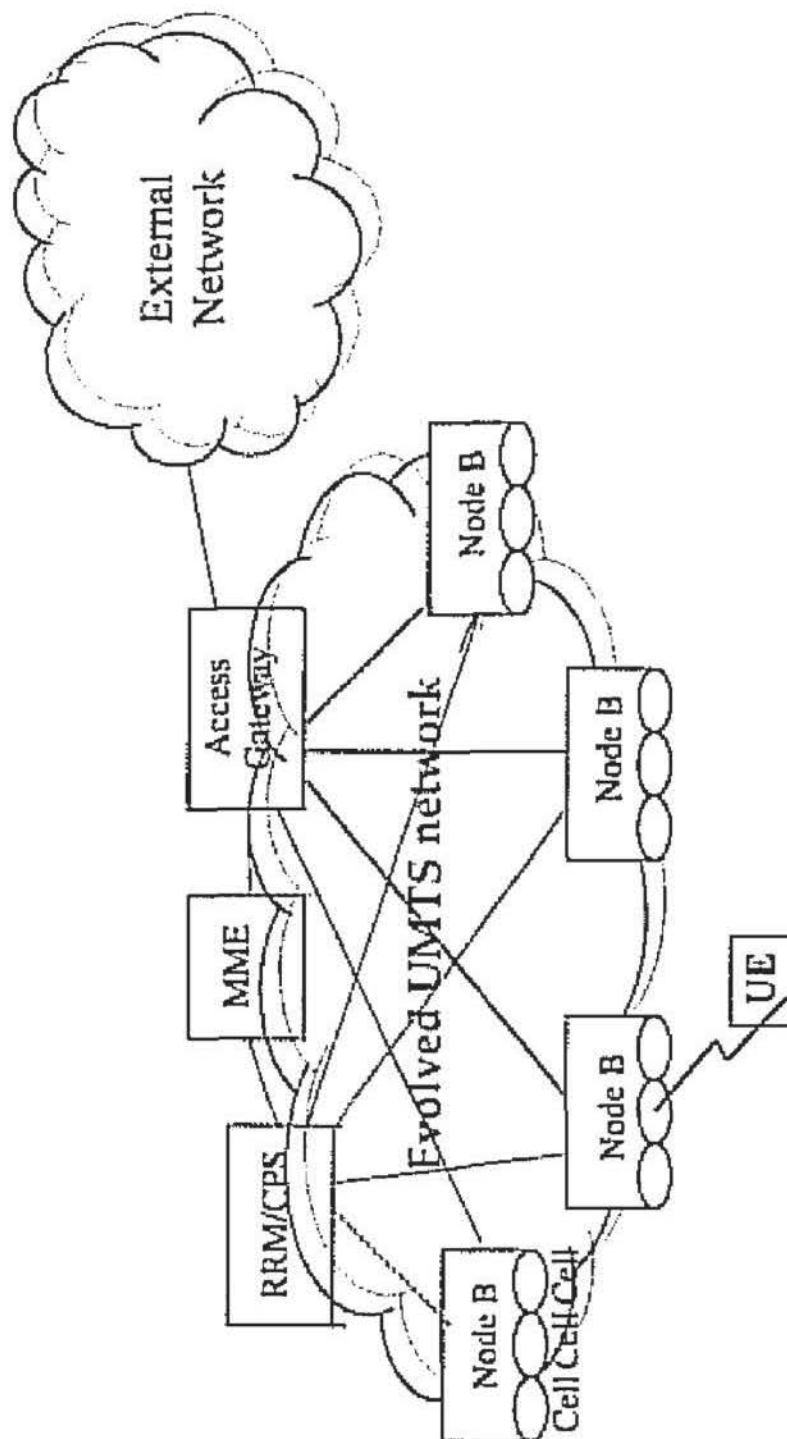


Fig 8

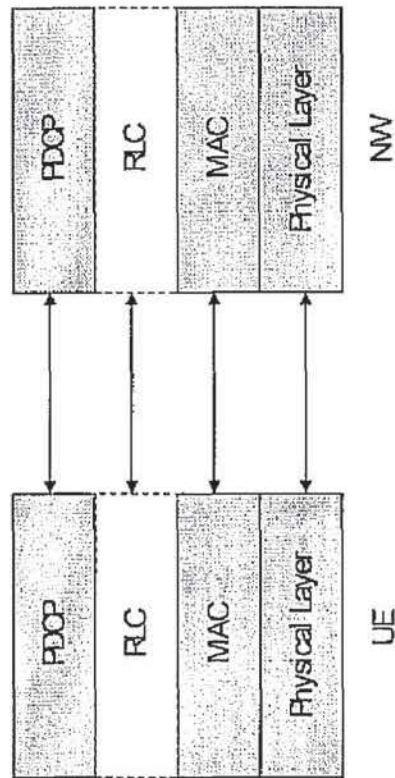


Fig 7

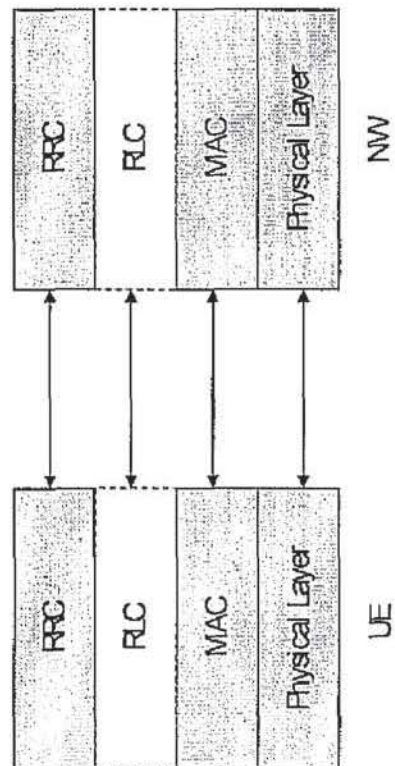
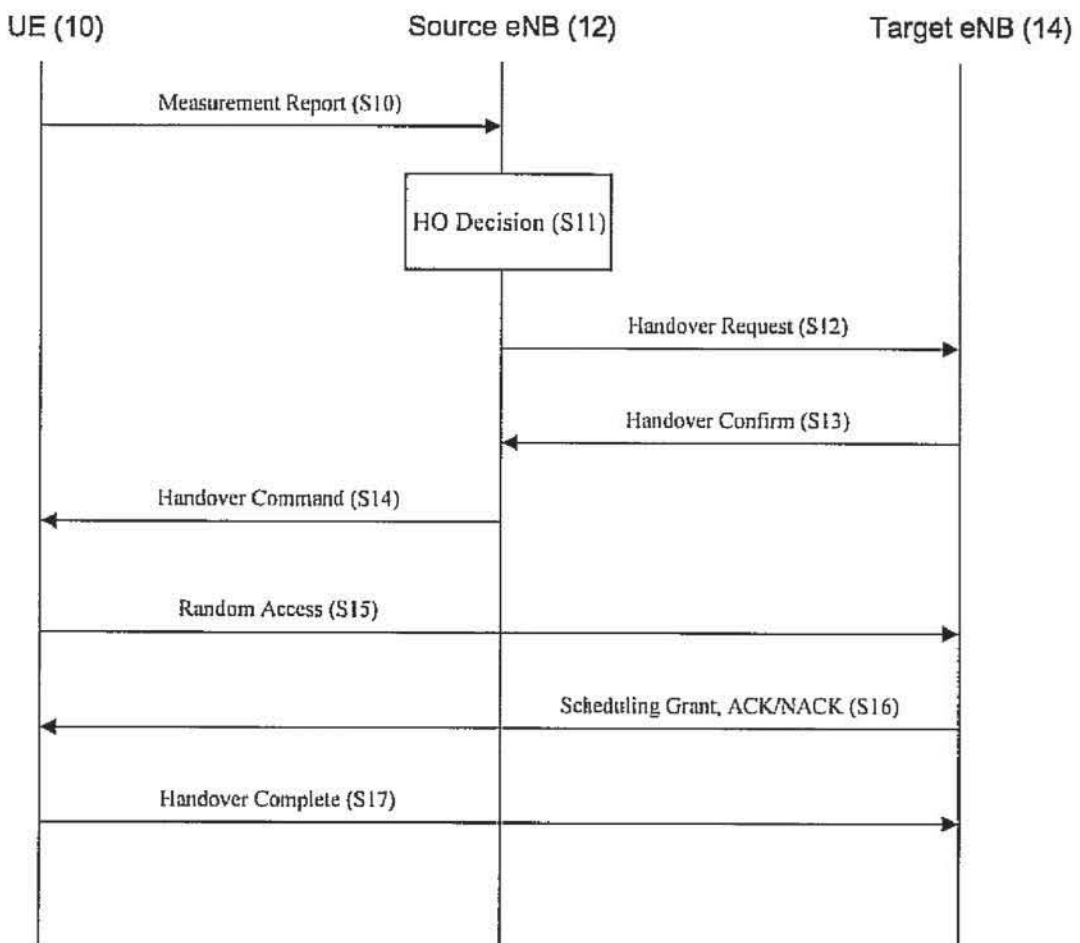


Fig 9



US 7,809,373 B2

1

METHOD OF TRANSMITTING AND RECEIVING RADIO ACCESS INFORMATION IN A WIRELESS MOBILE COMMUNICATIONS SYSTEM

CROSS REFERENCE TO RELATED APPLICATION

Pursuant to 35 U.S.C. §119, this application claims the benefit of earlier filing date and right of priority to U.S. Provisional Application No. 60/732,080, filed Oct. 31, 2005, and Korean Patent Application No. 10-2006-0063135, filed Jul. 5, 2006, the contents of which are hereby incorporated by reference herein in their entirety.

FIELD OF THE INVENTION

The present invention relates to wireless (radio) mobile communications systems, and in particular, relates to a method of transmitting and receiving radio connection information that allows a terminal to access a target base station (i.e., target eNB) in a faster and more efficient manner while performing a handover for the terminal to a cell of the target base station.

BACKGROUND ART

The universal mobile telecommunications system (UMTS) is a third-generation mobile communications system evolving from the global system for mobile communications system (GSM), which is the European standard. The UMTS is aimed at providing enhanced mobile communications services based on the GSM core network and wideband code-division multiple-access (W-CDMA) technologies.

FIG. 1 shows an exemplary diagram illustrating an Universal Mobile Telecommunication System (UMTS) network of a conventional mobile communication system. The UMTS is comprised of, largely, a user equipment (UE) or terminal, a UMTS Terrestrial Radio Access Network (UTRAN), and a core network (CN). The UTRAN comprises at least one Radio Network Sub-system (RNS), and each RNS is comprised of one Radio Network Controller (RNC) and at least one base station (Node B) which is controlled by the RNC. For each Node B, there is at least one cell.

FIG. 2 is an exemplary diagram illustrating a structure of a Radio Interface Protocol (RIP) between a UE and the UTRAN. Here, the UE is associated with a 3rd Generation Partnership Project (3GPP) wireless access network standard. The structure of the RIP is comprised of a physical layer, a data link layer, and a network layer on the horizontal layers. On the vertical plane, the structure of the RIP is comprised of a user plane, which is used for transmitting data, and a control plane, which is used for transmitting control signals. The protocol layers of FIG. 2 can be categorized as L1 (first layer), L2 (second layer), and L3 (third layer) based on an Open System Interconnection (OSI) model. Each layer will be described in more detail as follows. The first layer (L1), namely, the physical layer, provides an upper layer with an information transfer service using a physical channel. The physical layer is connected to an upper layer called a medium access control (MAC) layer through a transport channel. Data is transferred between the MAC layer and the physical layer through the transport channel. Data is also transferred between different physical layers, i.e. between physical layers of a transmitting side and a receiving side, through the physical channel.

2

The MAC layer of the second layer (L2) provides an upper layer called a radio link control (RLC) layer with a service through a logical channel. The RLC layer of the second layer supports reliable data transfer and performs segmentation and concatenation of a service data unit (SDU) received from an upper layer.

A radio resource control (RRC) layer at a lower portion of the L3 layer is defined in the control plane and controls logical channels, transport channels, and physical channels for configuration, re-configuration and release of radio bearers (RBs). A RB is a service provided by the second layer for data transfer between the terminal and the UTRAN. The configuration of the RBs includes defining characteristics of protocol layers and channels required to provide a specific service, and configuring respective specific parameters and operation methods.

A RRC connection and a signaling connection will be described in more detail as follows.

In order to perform communications, a terminal needs to have a RRC connection with the UTRAN and a signaling connection with the Core Network (CN). The terminal transmits and/or receives a terminal's control information with the UTRAN or the CN via the RRC connection and the signaling connection.

FIG. 3 shows an exemplary diagram for explaining how a RRC connection is established.

In FIG. 3, to establish the RRC connection, the terminal transmits a RRC Connection Request Message to the RNC, and then the RNC transmits a RRC Connection Setup Message to the terminal in response to the RRC Connection Request Message. After receiving the RRC Connection Setup Message by the terminal, the terminal transmits a RRC Connection Setup Complete Message to the RNC. If the above steps are successfully completed, the terminal establishes the RRC connection with the RNC. After the RRC connection is established, the terminal transmits an Initial Direct Transfer (IDT) message to the RNC for initializing a process of the signaling connection.

A Random Access Channel of a WCDMA will be described in more detail as follows.

The Random Access Channel (RACH) is used to transfer a short length data on an uplink, and some of the RRC message (i.e., RRC Connection Request Message, Cell Update Message, URA Update Message) is transmitted via the RACH. The RACH is mapped to a Common Control Channel (CCCH), a Dedicated Control Channel (DCCH) and a Dedicated Traffic Channel (DTCH), and then the RACH is mapped to a Physical Random Access Channel.

FIG. 4 shows how the physical random access channel (PRACH) power ramping and message transmission may be performed.

Referring to FIG. 4, the PRACH, which is an uplink physical channel, is divided into a preamble part and a message part. The preamble part is used to properly control a transmission power for a message transmission (i.e., a power ramping function) and is used to avoid a collision between multiple terminals. The message part is used to transmit a MAC PDU that was transferred from the MAC to the Physical channel.

When the MAC of the terminal instructs a PRACH transmission to the physical layer of the terminal, the physical layer of the terminal first selects one access slot and one (preamble) signature, and transmits the preamble on the PRACH to an uplink. Here, the preamble is transmitted within a particular the length of access slot duration (e.g., 1.33

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ms). One signature is selected among the 16 different signatures within a first certain length of the access slot, and it is transmitted.

If the preamble is transmitted from the terminal, a base station transmits a response signal via an Acquisition indicator channel (AICH) which is a downlink physical channel. The AICH, in response to the preamble, transmits a signature that was selected within the first certain length of the access slot. Here, the base station transmits an ACK response or a NACK response to the terminal by means of the transmitted signature from the AICH.

If the ACK response is received, the terminal transmits a 10 ms or 20 ms length of the message part using an OVFS code that correspond with the transmitted signature. If the NACK response is received, the MAC of the terminal instructs the PRACH transmission again to the physical layer of the terminal after a certain time period. Also, if no AICH is received with respect to the transmitted preamble, the terminal transmits a new preamble with a higher power compared to that used for the previous preamble after a predetermined access slot.

FIG. 5 illustrates an exemplary structure of an Acquisition Indicator Channel (AICH).

As shown in FIG. 5, the AICH, which is a downlink physical channel, transmits 16 symbol signatures ($S_i, i=0, \dots, 15$) for the access slot having a length of 5120 chips. The terminal may select any arbitrary signature (S_i) from S_0 signature to S_{15} signature, and then transmits the selected signature during the first 4096 chips length. The remaining 1024 chips length is set as a transmission power off period during which no symbol is transmitted. Also, as similar to FIG. 51 the preamble part of the uplink PRACH transmits 16 symbol signatures ($S_i, i=0, \dots, 15$) during the first 4096 chips length.

An Evolved Universal Mobile Telecommunication System (E-UMTS) will be described in more detail as follows.

FIG. 6 shows an exemplary structure of an Evolved Universal Mobile Telecommunications System (E-UMTS). The E-UMTS system is a system that has evolved from the UMTS system, and its standardization work is currently being performed by the 3GPP standards organization.

The E-UMTS network generally comprises at least one mobile terminal (i.e., user equipment: UE), base stations (i.e., Node Bs), a control plane server (CPS) that performs radio (wireless) control functions, a radio resource management (RRM) entity that performs radio resource management functions, a mobility management entity (MME) that performs mobility management functions for a mobile terminal, and an access gateway (AG) that is located at an end of the E-UMTS network and connects with one or more external networks. Here, it can be understood that the particular names of the various network entities are not limited to those mentioned above.

The various layers of the radio interface protocol between the mobile terminal and the network may be divided into L1 (Layer 1), L2 (Layer 2), and L3 (Layer 3) based upon the lower three layers of the Open System Interconnection (OSI) standard model that is known the field of communication systems. Among these layers, a physical layer that is part of Layer 1 provides an information transfer service using a physical channel, while a Radio Resource Control (RRC) layer located in Layer 3 performs the function of controlling radio resources between the mobile terminal and the network. To do so, the RRC layer exchanges RRC messages between the mobile terminal and the network. The functions of the RRC layer may be distributed among and performed within the Node B, the CPS/RRM and/or the MME.

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FIG. 7 shows an exemplary architecture of the radio interface protocol between the mobile terminal and the UTRAN (UMTS Terrestrial Radio Access Network). The radio interface protocol of FIG. 7 is horizontally comprised of a physical layer, a data link layer, and a network layer, and vertically comprised of a user plane for transmitting user data and a control plane for transferring control signaling. The radio interface protocol layer of FIG. 2 may be divided into L1 (Layer 1), L2 (Layer 2), and L3 (Layer 3) based upon the lower three layers of the Open System Interconnection (OSI) standards model that is known the field of communication systems.

Particular layers of the radio protocol control plane of FIG. 7 and of the radio protocol user plane of FIG. 8 will be described below. The physical layer (i.e., Layer 1) uses a physical channel to provide an information transfer service to a higher layer. The physical layer is connected with a medium access control (MAC) layer located thereabove via a transport channel, and data is transferred between the physical layer and the MAC layer via the transport channel. Also, between respectively different physical layers, namely, between the respective physical layers of the transmitting side (transmitter) and the receiving side (receiver), data is transferred via a physical channel.

The MAC layer of Layer 2 provides services to a radio link control (RLC) layer (which is a higher layer) via a logical channel. The RLC layer of Layer 2 supports the transmission of data with reliability. It should be noted that the RLC layer in FIG. 7 is depicted in dotted lines, because if the RLC functions are implemented in and performed by the MAC layer, the RLC layer itself may not need to exist. The PDCCP layer of Layer 2 performs a header compression function that reduces unnecessary control information such that data being transmitted by employing Internet protocol (IP) packets, such as IPv4 or IPv6, can be efficiently sent over a radio (wireless) interface that has a relatively small bandwidth.

The radio resource control (RRC) layer located at the lowest portion of Layer 3 is only defined in the control plane, and handles the control of logical channels, transport channels, and physical channels with respect to the configuration, re-configuration and release of radio bearers (RB). Here, the RB refers to a service that is provided by Layer 2 for data transfer between the mobile terminal and the UTRAN.

As for channels used in downlink transmission for transmitting data from the network to the mobile terminal, there is a broadcast channel (BCH) used for transmitting system information, and a shared channel (SCH) used for transmitting user traffic or control messages. Also, as a downlink transport channel, there is a downlink Shared Control Channel (SCCH) that transmits necessary control information for the terminal to receive the downlink SCH. The downlink SCCH transmission includes information regarding a data variation, a data channel coding technique, and a data size where the data is transmitted to the downlink SCH.

As for channels used in uplink transmission for transmitting data from the mobile terminal to the network, there is a random access channel (RACH) used for transmitting an initial control message, and a shared channel (SCH) used for transmitting user traffic or control messages. Also, in an uplink transport channel, there is an uplink Shared Control Channel (SCCH) that transmits necessary control information for the terminal to receive the uplink SCH. The uplink SCCH transmission includes information regarding a data variation, a data channel coding technique, and a data size where the data is transmitted to the uplink SCH.

In the related art, when the mobile terminal moves from a source cell to a target cell, the mobile terminal uses a RACH

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to transmit a cell update message to the target cell. Namely, in order to transmit the cell update message, the terminal uses the RACH for an uplink time synchronization with the target cell and for an uplink resource allocation. However, due to a collision possibility of the RACH, the message transmission may be delayed, and a handover processing time is increased because of the possibility of RACH collision.

SUMMARY

The present invention has been developed in order to solve the above described problems of the related art. As a result, the present invention provides a method of transmitting and receiving control radio connection information that allows a faster and an efficient way of accessing a terminal to a target base station while performing a handover for the terminal to a cell of the target base station.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows an exemplary diagram illustrating an Universal Mobile Telecommunication System (UMTS) network of a conventional mobile communication system.

FIG. 2 shows an exemplary diagram illustrating a structure of a Radio Interface Protocol (RIP) between a UE and the UTRAN.

FIG. 3 shows an exemplary diagram for explaining how a RRC connection is established.

FIG. 4 shows how the physical random access channel (PRACH) power ramping and message transmission may be performed.

FIG. 5 illustrates an exemplary structure of an Acquisition Indicator Channel (AICH).

FIG. 6 shows an overview of an E-UMTS network architecture.

FIGS. 7 and 8 show an exemplary structure (architecture) of a radio interface protocol between a mobile terminal and a UTRAN according to the 3GPP radio access network standard.

FIG. 9 shows an exemplary diagram for transmitting and receiving radio connection information according to an exemplary embodiment of the present invention.

DESCRIPTION

One aspect of the present invention is the recognition by the present inventors regarding the problems and drawbacks of the related art described above and explained in more detail hereafter. Based upon such recognition, the features of the present invention have been developed.

In the related art, when the mobile terminal moves from a source cell to a target cell, the mobile terminal uses a RACH to transmit a cell update message to the target cell. However, because of a possibility for a RACH collision (i.e. the same signature is being selected from multiple terminals that use of the RACH), the processing time for the handover process may be delayed.

In contrast, the features of the present invention provide that the terminal receives necessary information from a source cell in advance (i.e., before the terminal transmits a RACH setup request to a network) in order to utilize the RACH in a later step. As a result, the terminal can connect with the target cell with minimal delays.

It should be noted that the features of the present invention may be related to issues regarding the long-term evolution (LTE) of the 3GPP standard. As such, the 3GPP standard and its related sections or portions thereof, as well as various

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developing enhancements thereof pertain to the present invention. For example, in present invention, a source enhanced Node B (eNB) may manage the source cell described above and a target enhanced Node B (eNB) may manage the target cell.

FIG. 9 shows an exemplary diagram for transmitting and receiving radio connection information according to an exemplary embodiment of the present invention.

As illustrated in FIG. 9, the UE (or terminal) (10) may transmit a measurement report to the source eNB (12) by measuring a condition of a downlink physical channel for other cells periodically or upon the occurrence of event (i.e., user command, setting information, etc) (S10). As the measurement report is transmitted to the source eNB with a result for the measured condition of the downlink physical channel for other cells, the eNB may determine which cell, that the UE will be moved to, has a better channel condition compared to the current cell.

Using the measurement report which contains information about the condition of the downlink physical channel for other cells, the source eNB (12) may determine whether to perform a handover for the UE (10) from a current cell to the other cell, or whether to keep the UE in current cell (S11).

If the UE (10) needs to perform handover from the source eNB to an other particular cell, the source eNB (12) may transmit a handover request message to the target eNB (14) in order to request a handover for the UE to the target eNB. (S12) Here, the handover request message may include a UE identification (ID) and/or a buffer state of the UE.

If the target eNB (14) allows the handover to be performed for the UE upon receiving the handover request from the source eNB (12); the target eNB (14) may transmit a handover confirm message to the source eNB (12) (S13). The handover confirm message may include information that may be necessary in the course of connecting the UE (10) to the target cell. Namely, the necessary information may include information used in the RACH which is used for performing a radio access procedure from the UE to the target eNB. For example, when the RACH is being used while the UE accesses to the target eNB, the UE may utilize a preamble which is selected from signatures contained in the UE. System information transmitted from the eNB may include signatures related information. So, the UE may transmit the preamble to the eNB after selecting one of the signatures. However, in some cases, one or more UEs could select a same signature because there are a limited number of signatures. Therefore, if two or more UEs transmit the preamble of the same signature to the eNB at the same time, the eNB can not possibly determine which UE transmitted such preamble. To avoid this from happening, the UE should not transmit a preamble that is selected from the signatures used in the RACH during the handover; but rather, the UE may transmit a preamble of a previously defined signature through the handover confirm message from the target eNB. Here, the target eNB may acknowledge the mapping relationship between an UE's ID and the signature, where the UE's ID is transmitted from the Handover Request Message. Therefore, when the UE transmits the preamble to the target eNB for establishing a radio connection to the target cell, the target eNB may determine an ID of the UE using the preamble. Also, the Handover Confirm message may include a transmission characteristic of the preamble that is transmitted from the UE (10) to the target eNB (14). The transmission characteristic may relate to frequency and time used in transmitting the preamble information.

If the source eNB (12) receives the Handover confirm message of the UE from the target eNB (14), the source eNB

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(12) may transmit a Handover Command message to the UE (10). (S14) The Handover Command message may include necessary information which comes from the target eNB, for establishing the radio connection to the target eNB. Also, the Handover Command message may include information of the signature and the preamble which is to be used in the access procedure to the target eNB.

The UE (10), which received the handover command message from the source eNB (12), may utilize the RACH for establishing the radio connection between the UE and the target eNB. (S15) Here, the preamble transmission of the UE is based upon information in the handover command message received from the source eNB (12). Also, if the information includes system information of the target eNB (14), the UE (10) may perform a radio accessing procedure without reading broadcast system information from the target eNB (14). For example, when the UE performs to establish the radio connection with a new cell, the UE usually reads system information of the corresponding eNB after time synchronization of the downlink. Since the system information includes information related to a radio access request message from the UE to an uplink, the radio accessing is performed after reading the system information. However, according to the present invention, the UE (10) may perform the radio access procedure without reading the system information in the target cell, as the system information of the target eNB is previously transmitted to the source eNB in advance and the system information was included in the handover command message.

The target eNB (14) may receive the preamble of the UE. Since the target eNB (14) already allocates a signature used in the preamble to the UE in the use of handover, the UE can be identified by the preamble. The target eNB (14) may allocate the uplink radio resource to the UE (10) for the UE to access the target eNB and to transmit the handover complete message to the target eNB. (S16) Also, the allocated radio resources information may be transmitted to the UE (10) via a downlink SCH. Alternatively, the allocated radio resources information may be transmitted via a downlink SCCH. Further, the allocated radio resources may be transmitted within an ACK/NACK signaling.

The UE (10) may transmit the handover complete message to the target eNB (14) based on a scheduling grant of the target eNB. (S17) If the scheduling grant includes information of allocated radio resources upon an allocation request of the uplink radio resources of the UE, the scheduling grant may be transmitted with the ACK/NACK signaling of the preamble transmitted from the UE (10). In this case, the Handover complete message from the UE may include a buffer state of the UE or its related information. If the allocated uplink radio resources, which is transmitted from the target eNB (14) to the UE (10), is sufficient, the handover complete message may be transmitted with additional traffic data when there is additional uplink traffic data.

It can be said that the present invention provides a method of transmitting access information in a mobile communications system, the method comprising: deciding to perform a handover for a terminal to a cell of a target base station; transmitting, to the target base station, a handover request for performing a handover from a source base station to the target base station; receiving access information from the target base station that received the handover request, wherein the access information is then transmitted to the terminal to access the target base station; receiving a measurement report from the terminal; determining whether to perform a handover based upon the received measurement report; and transmitting a handover command that contains the access

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information to the terminal upon receiving the response by the source base station, wherein the measurement report includes a downlink physical channel condition for multiple cells including the cell of the target base station, the handover request includes at least one of terminal identification (ID) information and/or buffer state information of the terminal, the access information is random access information, the access information is for a random access channel (RACH), the access information includes at least one of signature information and/or preamble information, the signature information is determined by the target base station based upon terminal identification information, the preamble information includes frequency information and time information, and the handover command includes access information which contains at least one of signature information and/or preamble information to allow the terminal to access the target base station.

Also, the present invention may provide a method of transmitting access information in a mobile communications system, the method comprising: receiving, from a source base station, a handover request for performing a handover from the source base station to a target base station; transmitting access information to the source base station upon receiving the handover request, wherein the access information is used to allow a terminal to access the target base station; allocating a radio resource for an uplink and transmitting radio resource allocation information to the terminal; receiving, from the terminal, preamble information of the terminal; and receiving a handover complete message from the terminal, wherein the radio resource allocation information is transmitted to the terminal through at least one of a downlink shared channel (SCH) and a downlink shared control channel (SCCH), an ACK/NACK signal includes the allocated resource information, the preamble information is used to identify the terminal, the handover complete message includes at least one of buffer state information of the terminal and uplink traffic data, and the handover complete message includes uplink traffic data if the radio resource allocation for the uplink is sufficient to transmit the uplink traffic data.

It can be said that the present invention provides a method of receiving access information in mobile communications system, the method comprising: receiving access information from a source base station after a handover is accepted by a target base station; performing a random access procedure with the target base station using the received access information; transmitting a measurement report to the source base station by measuring a condition of a downlink physical channel for other cells, the measuring performed periodically or upon an occurrence of an event; transmitting the preamble information to the target base station for performing a radio access procedure with the target cell; receiving, from a network, radio resource information through a downlink shared channel (SCCH); receiving, from a network, radio resource information within an ACK/NACK signaling; and transmitting a handover complete message to the target base station, wherein the measurement report is used to determine whether to perform a handover from a current cell to another cell, the access information is random access information for a random access channel (RACH) which includes preamble information within signature information, the access information includes a transmission characteristic of the preamble information, the transmission characteristic relates to frequency and time used in transmitting the preamble information, the access information includes system information transmitted from the target base station, and the handover complete message includes at least one of buffer state information of the terminal and uplink traffic data.

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The present invention also may provide a mobile terminal for establishing a radio connection to a target base station in a mobile communications system, the mobile terminal comprising: a radio protocol adapted to receive access information from a source base station after a handover is accepted by the target base station and to perform a random access procedure with the target base station using the received access information, wherein the source base station is a source enhanced Node B (source eNB) and the target base station is a target enhanced Node B (target eNB) respectively in an Evolved Universal Mobile Telecommunication System (E-UMTS).

Although the present invention is described in the context of mobile communications, the present invention may also be used in any wireless communication systems using mobile devices, such as PDAs and laptop computers equipped with wireless communication capabilities (i.e. interface). Moreover, the use of certain terms to describe the present invention should not limit the scope of the present invention to a certain type of wireless communication system. the present invention is also applicable to other wireless communication systems using different air interfaces and/or physical layers, for example, TDMA, CDMA, FDMA, WCDMA, OFDM, EV-DO, Mobile Wi-Max, Wi-Bro, etc.

The preferred embodiments may be implemented as a method, apparatus or article of manufacture using standard programming and/or engineering techniques to produce software, firmware, hardware, or any combination thereof. The term "article of manufacture" as used herein refers to code or logic implemented in hardware logic (e.g., an integrated circuit chip, Field Programmable Gate Array (FPGA), Application Specific Integrated Circuit (ASIC), etc.) or a computer readable medium (e.g., magnetic storage medium (e.g., hard disk drives, floppy disks, tape, etc.), optical storage (CD-ROMs, optical disks, etc.), volatile and non-volatile memory devices (e.g., EEPROMs, ROMs, PROMs, RAMs, DRAMs, SRAMs, firmware, programmable logic, etc).

Code in the computer readable medium is accessed and executed by a processor. The code in which preferred embodiments are implemented may further be accessible through a transmission media or from a file server over a network. In such cases, the article of manufacture in which the code is implemented may comprise a transmission media, such as a network transmission line, wireless transmission media, signals propagating through space, radio waves, infrared signals, etc. Of course, those skilled in the art will recognize that many modifications may be made to this configuration without departing from the scope of the present invention, and that the article of manufacture may comprise any information bearing medium known in the art.

This specification describes various illustrative embodiments of the present invention. The scope of the claims is intended to cover various modifications and equivalent arrangements of the illustrative embodiments disclosed in the specification. Therefore, the following claims should be accorded the reasonably broadest interpretation to cover modifications, equivalent structures, and features that are consistent with the spirit and scope of the invention disclosed herein.

The invention claimed is:

1. A method of transmitting access information in a mobile communications system, the method comprising:

deciding to perform a handover for a terminal to a cell of a target base station;

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transmitting, from a source base station to the target base station, a handover request for performing a handover of the terminal from the source base station to the target base station;

receiving, at the source base station, access information from the target base station that received the handover request, wherein the receiving of the access information occurs after the transmitting of the handover request; and

transmitting, from the source base station to the terminal, the access information being configured to permit the terminal to access the target base station;

wherein the access information includes preamble information for a random access procedure,

wherein the preamble information is a dedicated preamble used only for a specific terminal, and

wherein the dedicated preamble is determined by the target base station.

2. The method of claim 1, further comprising:

receiving a measurement report from the terminal.

3. The method of claim 2, wherein the measurement report includes a downlink physical channel condition for multiple cells including the cell of the target base station.

4. The method of claim 3, further comprising:

determining whether to perform a handover based upon the received measurement report.

5. The method of claim 1, wherein the access information is for a random access channel (RACH).

6. The method of claim 1, wherein the preamble information includes frequency information and time information.

7. The method of claim 1, further comprising: transmitting a handover command that contains the access information to the terminal upon receiving the access information by the source base station.

8. A method of transmitting access information in a mobile communications system, the method comprising:

receiving, at a target base station from a source base station, a handover request for performing a handover of a terminal from the source base station to the target base station; and

transmitting, from the target base station to the source base station, access information upon receiving the handover request, wherein the access information is used to allow the terminal to access the target base station,

wherein the access information includes preamble information for a random access procedure,

wherein the preamble information is a dedicated preamble used only for a specific terminal, and

wherein the dedicated preamble is determined by the target base station.

9. The method of claim 8, further comprising: allocating a radio resource for an uplink and transmitting radio resource allocation information to the terminal.

10. The method of claim 9, wherein the radio resource allocation information transmits to the terminal through at least one of a downlink shared channel (SCH) and a downlink shared control channel (SCCH).

11. The method of claim 10, wherein an ACK/NACK signal includes the allocated resource information.

12. The method of claim 8, wherein the preamble information is used to identify the terminal.

13. The method of claim 8, further comprising:

receiving a handover complete message from the terminal.

14. The method of claim 13, wherein the handover complete message includes uplink traffic data if the radio resource allocation for the uplink is sufficient to transmit the uplink traffic data.

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15. A method of receiving access information in a mobile communications system, the method comprising:
 receiving access information from a source base station after a handover request is accepted by a target base station,
 wherein the access information includes preamble information for a random access procedure,
 wherein the preamble information is a dedicated preamble used only for a specific terminal, and
 wherein the dedicated preamble is determined by the target base station; and
 performing the random access procedure with the target base station using the received access information, such that the access information is configured to permit the terminal to access the target base station.

16. The method of claim 15, further comprising:
 transmitting a measurement report to the source base station by measuring a condition of a downlink physical channel for other cells, the measuring performed periodically or upon an occurrence of an event.

17. The method of claim 16, wherein the measurement report is used to determine whether to perform a handover from a current cell to one of the other cells.

18. The method of claim 15, further comprising:
 transmitting the preamble information to the target base station for performing a radio access procedure with the target cell.

19. The method of claim 15, wherein the access information includes a transmission characteristic of the preamble information, and the transmission characteristic relates to frequency and time used in transmitting the preamble information.

20. The method of claim 15, wherein the access information includes system information transmitted from the target base station.

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21. The method of claim 15, further comprising:
 receiving, from a network, radio resource information through a downlink shared channel (SCCH).

22. The method of claim 15, further comprising:
 receiving, from a network, radio resource information within an ACK/NACK signaling.

23. The method of claim 15, further comprising:
 transmitting a handover complete message to the target base station.

24. A mobile terminal for establishing a radio connection to a target base station in a mobile communications system, the mobile terminal comprising:
 a radio protocol adapted to receive access information from a source base station after a handover request is accepted by the target base station and to perform a random access procedure with the target base station using the received access information, such that the access information is configured to permit the terminal to access the target base station,
 wherein the access information includes preamble information for the random access procedure,
 wherein the preamble information is a dedicated preamble used only for a specific terminal, and
 wherein the dedicated preamble is determined by the target base station.

25. The terminal of claim 24, wherein the source base station is a source enhanced Node B (source eNB) and the target base station is a target enhanced Node B (target eNB) respectively in an Evolved Universal Mobile Telecommunication System (E-UMTS).

26. The method of claim 1, wherein the access information permits the terminal to access the target base station via a random access channel (RACH).

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